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An annotated catalogue and bibliography of the taxonomy, synonymy and distribution of the Recent Vetigastropoda of South Africa (Mollusca)

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Abstract

A complete inventory of the known Recent vetigastropod fauna of South Africa is provided. Bibliographic citations to works discussing the taxonomy, synonymy and distribution of the species in a southern African or south-western Indian Ocean context are provided. Additional explanatory notes are given where pertinent.

New genus records for South Africa: *Acremodontina* B.A. Marshall, 1995; *Choristella* Bush, 1879; *Cocculinella* Thiele, 1909; *Conjectura* Finlay, 1926; *Crosseola* Iredale, 1924; *Falsimargarita* Powell, 1951; *Lepetella* Verrill, 1880; *Profundisepta* McLean & Geiger, 1998; *Stomatella* Lamarck, 1816; *Stomatia* Helbling, 1779; *Stomatolina* Iredale, 1937; *Synaptocochlea* Pilsbry, 1890; *Tibatrochus* Nomura, 1940; *Visayaseguenzia* Poppe, Tagaro & Dekker, 2006; *Zetela* Finlay, 1926.

New species records for South Africa: *Acremodontina* aff. *carinata* Powell, 1940; *Anatoma finlayi* (Powell, 1937); *Anatoma munieri* (P. Fischer, 1862); *Calliotropis acherontis* B.A. Marshall, 1979; *Calliotropis bucina* Vilvens, 2006; *Cocculinella minutissima* (E.A. Smith, 1904); *Diodora ruppellii* (G.B. Sowerby (I), 1835); *Emarginula costulata* Deshayes, 1863; *Emarginula decorata* Deshayes, 1863; *Jujubinus hubrechti* Poppe, Tagaro & Dekker, 2006; *Lepetella* sp.; *Seguenzia orientalis* Thiele, 1925; *Stomatella auricula* Lamarck, 1816; *Stomatia phymotis* Helbling, 1779; *Stomatolina angulata* (A. Adams, 1850); *Stomatolina* cf. *calliostoma* (A. Adams, 1850); *Stomatolina* aff. *danblumi* Singer & Mienis, 1999; *Stomatolina* cf. *rubra* (Lamarck, 1822); *Stomatolina* sp.; *Synaptocochlea concinna* (Gould, 1845); *Tectus mauritanus* (Gmelin, 1791); *Tibatrochus* cf. *incertus* (Schepman, 1908); *Turbo imperialis* Gmelin, 1791; *Turbo tursicus* Reeve, 1848; *Visayaseguenzia compsa* (Melvill, 1904).

New species: *Spectamen martensi*, replacement name for *Spectamen semisculptum* sensu Herbert (1987) (non Martens, 1904).

New name: *Oxystele antoni* is proposed as a new name for *Trochus (Turbo) variegatus* (non Gmelin, 1791 = *Heliacus*) Anton, 1838.

Revised taxonomy: *Cyclostrema semisculptum* Martens, 1904 is an earlier name for *Solariella intermissa* Thiele, 1925, and is referable to the genus *Zetela* Finlay, 1926; *Margarita bicarinata* A. Adams & Reeve, 1850 is considered to be a senior synonym of *Solariella undata* G.B. Sowerby (II), 1870, and is referable to the genus *Ilanga* Herbert, 1987. Validation of the name *Trochus tigrinus* Chemnitz, 1781 is credited to Dillwyn (1817) rather than Anton (1838).

New synonyms: *Clanculus exquisita* Turton, 1932 = *Calliostoma africanum* Bartsch, 1915; *Cyclostrema alfredensis* Bartsch, 1915 = *Parviturbo alfredensis* (Bartsch, 1915); *Cynisca gloria* Bartsch, 1915 = *Cinysca spuria* (Gould, 1861); *Herbertina hayesi* Herbert, 1995 = *Bruceina chenoderma* (Barnard, 1963); *Ilanga millardi* Herbert, 1987 = *Ilanga humilima* (Thiele, 1925); *Leptothyra africana* Bartsch, 1915 = *Cinysca spuria* (Gould, 1861); *Leptothyra albocincta* Turton, 1932 = *Tricolia striolata* (Turton, 1932); *Solariella undata* G.B. Sowerby (II), 1870, *S. gratiosa* Thiele, 1925 and *S. valdiviae* Thiele, 1925 = *Ilanga bicarinata bicarinata* (A. Adams & Reeve, 1850); *Solariella chuni* Thiele, 1925, *S. intermissa* Thiele, 1925, *S. gilchristi* Barnard, 1963 and *S. macleari* Barnard, 1963 = *Zetela semisculpta* (Martens, 1904); *Turbo (Colonia) armillatus* G.B. Sowerby (III), 1886 = *Cinysca spuria* (Gould, 1861).

New combinations: *Basilissa (Ancistrobasis) compsa* Melvill, 1904 is transferred to *Visayaseguenzia*; *Calcar rhyso-poma* Barnard, 1964 is transferred to *Bothropoma*; *Calliostoma glaucophaos* Barnard, 1963 is transferred to *Falsimargarita*; *Calliotropis chenoderma* Barnard, 1963 is transferred to *Bruceina*; *Collonia bicarinata* Martens, 1902 is transferred to *Cinysca*; *Crossea agulhasensis* Thiele, 1925 is transferred to *Conjectura*; *Cyclostrema semisculptum* Martens, 1904 is transferred to *Zetela*; *Cyclostremella farica* Bartsch, 1915 is transferred to *Dikoleps*; *Cynisca africana* Bartsch, 1915 is transferred to *Homalopoma*; *Leptogyra africana*: Bartsch, 1915 is transferred to *Cirsonella*; *Leptothyra agulhasensis* Thiele, 1925 is transferred to *Homalopoma*; *Leptothyra alfredensis* Bartsch, 1915 is transferred to *Parviturbo*; *Leptothyra sola* Barnard, 1963 is transferred to a *Parviturbo*; *Liotia (Cynisca) semiclausa* Thiele, 1925 is transferred to *Cinysca*; *Monilea spuria* Gould, 1861 is transferred to *Cinysca*; *Monodonta gibbula* Thiele, 1925 is transferred to *Cantrainea*; *Puncturella voraginosa* Herbert & Kilburn, 1986 is transferred to *Profundisepta*; *Solariella fuscomaculata* G.B. Sowerby (III), 1892 is transferred to *Skenea*; *Solariella turbynei* Barnard, 1963 is transferred to *Zetela*; *Turbo boswellae* Barnard, 1969 is transferred to *Cantrainea*; *Turbo foveolatus* Barnard, 1963 is transferred to *Crosseola*; *Turbo ponsonbyi* G.B. Sowerby (III), 1897 is transferred to *Bothropoma*; *Vitrinella agulhasensis* Thiele, 1925 is transferred to *Parviturbo*; *Vitrinella (Docomphala) arifca* Bartsch, 1915 is transferred to *Lodderena*; *Vitrinella inclinans* Barnard, 1963 is transferred to *Skenea*.

Key words: inventory, systematic framework, marine, Gastropoda, South Africa

Introduction

Research dealing with biodiversity and subsequent endeavours to conserve that biodiversity require reliable baseline data regarding the variety and distribution of the organisms concerned. Such ‘what have we got?’ and

‘where does it occur?’ information lies at the foundation of biodiversity research. In turn, our knowledge of ‘what we have and where it occurs’ is dependent on there being a sound taxonomic and systematic framework, as well as suitably representative spatial inventory data. The latter is commonly derived from the specimens housed in museum collections and the former from the research that ought to be done on those collections (though this is increasingly under threat).

The present contribution follows this pattern and attempts to provide an up-to-date and annotated inventory of the vetigastropod fauna of South Africa. It is a distillation of my research on this group extending over more than 30 years. The taxonomic and systematic framework is derived from the largely morphology-based studies of Hickman & McLean (1990), Hickman (1996), Ponder & Lindberg (1997), Sasaki (1998), Geiger *et al.* (2008) and Warén & Bouchet (2005), with additional modifications that take into account advances in vetigastropod systematics resulting from insights gained through more recent molecular studies (Kano 2008; Williams *et al.* 2008; Kano *et al.* 2009; Aktipis & Giribet 2010; 2011, Williams *et al.* 2010; Aktipis *et al.* 2011; Williams 2012). In terms of the content of the subclass, I largely follow Warén & Bouchet (2005) with modifications to accommodate the more recent recognition of angariids and phasianellids as distinct superfamilies (Williams *et al.* 2008). I note, however, unresolved issues regarding whether or not pleurotomariids and lepetellids are in fact vetigastropods *sensu stricto* (Aktipis & Giribet 2010, 2011) and acknowledge that the composition of higher vetigastropod taxa and our understanding of their relationships is likely to change as research proceeds.

Superfamilies are treated in the order Lepetelloidea, Pleurotomarioidea, Scissurelloidea, Haliotoidea, Fissurelloidea, Seguenzioidea, Trochoidea, Angarioidea and Phasianelloidea, ending with vetigastropod families of uncertain affinity. Within each of these, the families, subfamilies, genera and species are listed alphabetically. For all species, I provide a more or less comprehensive listing of the literature references that make mention of the species and their synonyms in a southern African or western Indian Ocean context. In cases where a relatively modern revision giving a detailed synonymy and chresonymy is available, then I have cited this without duplication of the information therein. I have not given exhaustive details of citations in the 19th century conchological iconographies (Kiener, Küster, Pilsbry, Reeve, Sowerby, etc.) as these were often mere repetitions of the original description and the figures are frequently of limited value. The references given are primarily those that relate to taxonomy and distribution of the species concerned. I have not attempted to include references to the biology of the animals since these would be too numerous for well-known species such as *Halotis midae* Linnaeus, 1758. An indication of the geographic range of each species is provided, together with its bathymetric range, including that for living specimens where known. For widespread species such details are given for local material only. Spatial data was obtained partly from published resources, but mostly from specimen records in the KwaZulu-Natal Museum Mollusca collection. Additional notes are provided where pertinent information is available.

For some taxa, particularly those that are common, shallow-water species or those that have been comparatively recently revised, the taxonomy is relatively well established. For others, particularly those from bathyal habitats and those of small size, the taxonomy is sometimes poorly resolved, e.g. Lepetellidae, Seguenziidae and Skeneidae. Many questions remain and revisionary studies of these groups are much needed. The geographical limit of the checklist is defined by the political boundary of South Africa, from the border with Mozambique to that with Namibia (excluding Marion and Prince Edward islands). This limit is easily defined, but the issue of a bathymetric cut-off is more problematic. To restrict the listing to species occurring on the continental-shelf (less than *ca* 200 m depth) would be to exclude a substantial part of the sea floor that falls within South Africa’s exclusive economic zone. Conversely to include species from abyssal depths as part of the South African biota might be considered unjustifiable. However, since the number of vetigastropods known from deep water off the South African coast is relatively few, I have erred on the side of inclusivity. Species recorded only from such depths are marked with *. Nonetheless, I have not included the abyssal South Atlantic species recorded by Clarke (1961) from the Cape Basin and the so-called Agulhas Basin, nor those recorded by Barnard (1963e) from 1400 km SSE of Madagascar.

In total the vetigastropod fauna of South Africa comprises 245 species, plus four subspecies. These belong to nine superfamilies, with four species being of uncertain affinity. The relative proportions of the total contributed by the nine superfamilies are given in Table 1 and Figure 1. The greatest proportion of the fauna belongs to the Trochoidea, comprising 48% of the total. Figures for the relative endemism of the fauna are given in Table 2 and presented graphically in Figure 2. Approximately 50% of the fauna is confined to South African waters. Another

substantial component, 45% of the fauna, is of tropical Indo-West Pacific affinity. This includes species known only from the south-western Indian Ocean (17.6% of the fauna) as well as those more widely distributed in the western Indian Ocean and the Indo West-Pacific as a whole. Relatively few are cold-temperate species from the western seaboard.

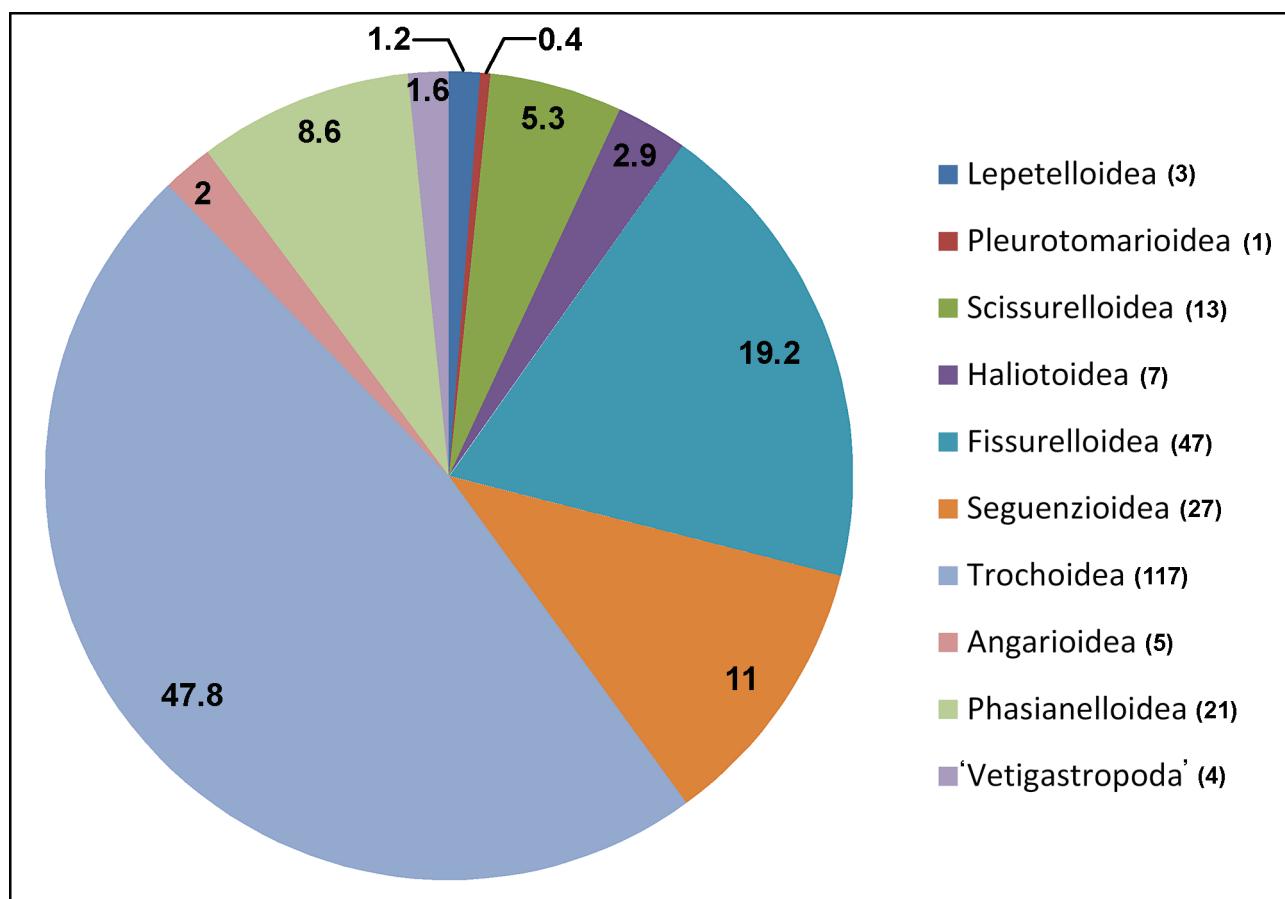


FIGURE 1. Graphic representation of the relative contributions of the nine vetigastropod superfamilies occurring in South Africa. Figures given in the chart represent the percentage of the total, those in the legend are the actual number of species involved.

TABLE 1. Superfamily composition of the South African vetigastropod fauna and the number of species occurring in each, together with the percentage that each contributes to the total.

Superfamily	No. of species	Percentage of total
Lepetelloidea	3	1.2
Pleurotomarioidea	1	0.4
Scissurelloidea	13	5.3
Haliotoidea	7	2.9
Fissurelloidea	47	19.2
Seguenzioidea	27	11.0
Trochoidea	117	47.8
Angarioidea	5	2.0
Phasianelloidea	21	8.6
'Vetigastropoda' (unassigned)	4	1.6
Total	245	100

TABLE 2. Relative endemicity of the South African vetigastropod fauna. The figure for South Africa and Namibia includes species carried by ocean currents to isolated islands in the southern Atlantic and Indian oceans.

Region	No. of species endemic to region	Percentage of total
South Africa	120	49.0
South Africa and Namibia +	15	6.1
South-western Indian Ocean	43	17.6
Western Indian Ocean	32	13.1
Indo-West Pacific	35	14.3
Total	245	100

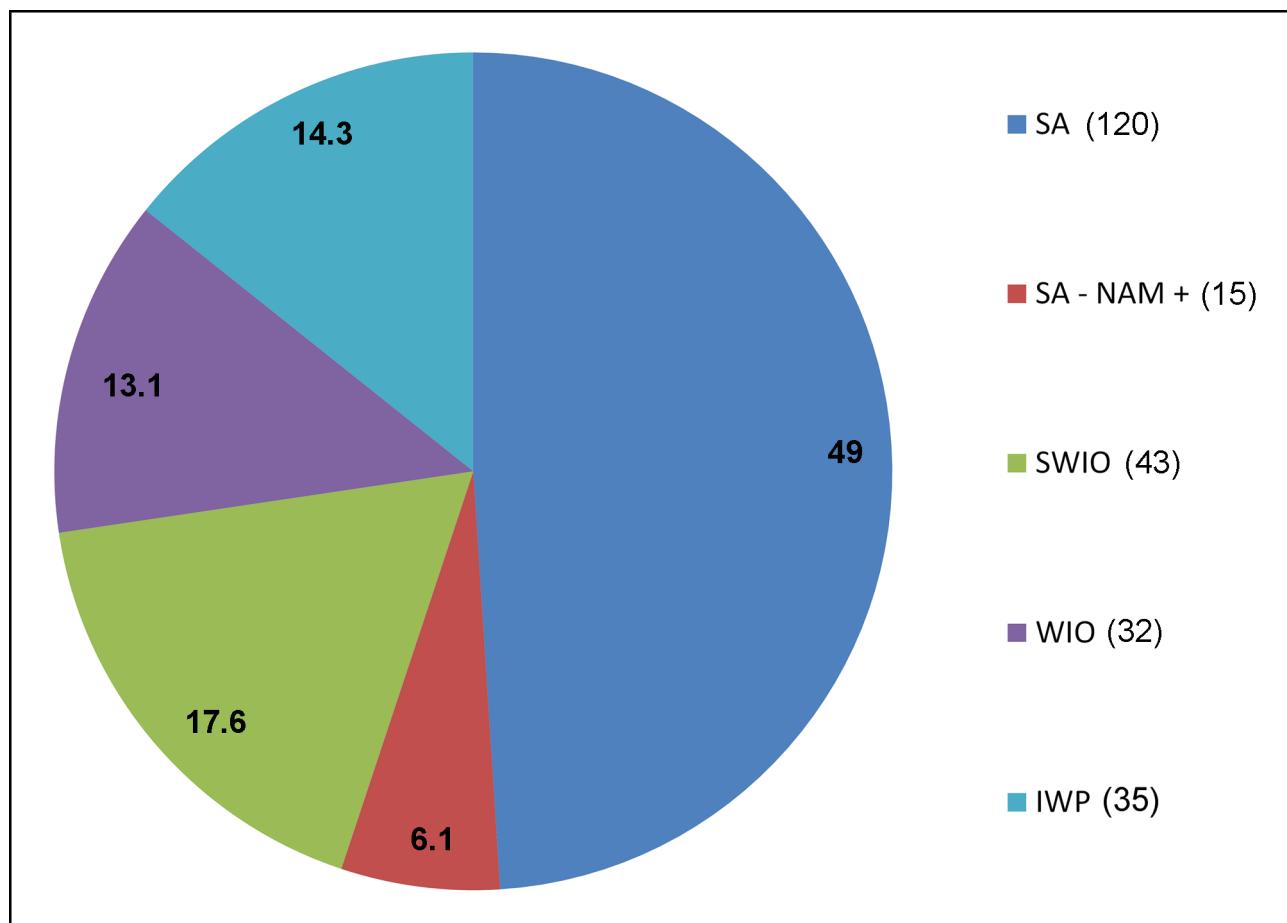


FIGURE 2. Graphic representation of the relative endemicity of the South African vetigastropod fauna. Figures given in the chart represent the percentage of the total, those in the legend are the actual number of species involved. IWP =Indo-West Pacific; SA =South Africa; SA-NAM + =South Africa and Namibia, plus isolated islands in the southern Atlantic and Indian oceans; SWIO =south-western Indian Ocean; WIO =Western Indian Ocean.

Material and methods

Photographs of shells were taken with a Nikon D70 camera and for small species (Crosseolidae, Seguenziidae and Solariellidae) a Zeiss Stemi 2000-C dissecting microscope with AxioCam ERc5s digital camera. Stacked images were combined using Helicon Focus Pro (Helicon Soft Ltd) to provide extended depth of field. For very small species (Skeneidae) a Zeiss Axio Zoom V16 dissecting microscope with AxioCam 506 digital camera was used and stacked images were combined using Zeiss ZEN Digital Imaging software. Radulae were extracted by maceration of the buccal mass in dilute NaOH and then thoroughly rinsed in distilled water, dehydrated in ethanol, placed on stubs with double-sided carbon tape and manipulated into position using fine entomological pins whilst air-drying. Shells

and radulae for SEM examination were coated with gold–palladium and examined at low accelerating voltage (5–10 kv) in Jeol T/200, Hitachi S–570 SEM, and Philips XL30 ESEM scanning electron microscopes.

Institutional abbreviations

AMS	Australian Museum, Sydney, Australia
ANSP	Academy of Natural Sciences, Philadelphia, USA
HUJ	Hebrew University, Jerusalem, Israel
LSL	Linnean Society of London, UK
MCZ	Museum of Comparative Zoology, Harvard, USA
MDNG	Museum der Natur, Gotha, Germany
MHNG	Muséum d'Histoire Naturelle, Genève, Switzerland
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MNHNC	Museo Nacional de Historia Natural, Santiago, Chile
MTD	Museum für Tierkunde, Dresden, Germany
NHM	Natural History Museum, London, UK
NHMW	Naturhistorisches Museum, Wien, Austria
NMNZ	National Museum New Zealand Te Papa Tongarewa, Wellington, New Zealand
NMPM	National Museum of the Philippines, Manila, Philippines
NMSA	KwaZulu-Natal Museum, Pietermaritzburg, South Africa
NMW	National Museum of Wales, Cardiff, UK
NSMT	National Museum of Nature and Science, Tokyo, Japan
OXUM	Oxford University Museum, Oxford, UK
PMBC	Phuket Marine Biological Centre, Phuket, Thailand
RBINS	Royal Belgian Institute of Natural Science, Brussels, Belgium
RMNH	Naturalis Biodiversity Centre, Leiden, Netherlands
SAMC	South African Museum, Cape Town, South Africa
SGPIH	Geological-Paleontological Institute, University of Hamburg, Germany
SMNH	Swedish Museum of Natural History, Stockholm, Sweden
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany
UMZC	University Museum of Zoology, Cambridge, UK
USNM	National Museum of Natural History, Washington DC, USA
UUZM	Uppsala University Zoological Museum, Sweden
ZMA	Zoological Museum, University of Amsterdam, Netherlands
ZMB	Museum für Naturkunde, Berlin, Germany
ZMMU	Zoological Museum of Moscow State University, Russia
ZMUC	Zoological Museum, University of Copenhagen, Denmark
ZSIC	Zoological Survey of India, Calcutta, India

Other symbols and abbreviations

#	new genus record for South Africa
*	species recorded only from bathyal depths.
LST	low spring tide
m.	monotypy
o.d.	original designation
s.d.	subsequent designation

SUBCLASS: VETIGASTROPODA Salvini-Plawen, 1980

SUPERFAMILY: LEPETELLOOIDEA Dall, 1882

FAMILY: COCCULINELLIDAE Moskalev, 1971

#*Cocculinella* Thiele, 1909. Type species (m.): *Acmaea minutissima* E.A. Smith, 1904.

Cocculinella minutissima (E.A. Smith, 1904)—new record

(Figure 3A, B)

Acmaea minutissima E.A. Smith, 1904: 4. Annandale & Stewart, 1909: pl. 16, figs 3, 3a, 3b. Type loc.: Andaman Islands, 130–250 fathoms [238–457 m], upon slender pieces of water-logged wood [in fact this was teleost bone, B.A. Marshall 1985: 143]; two syntypes in ZSIC (M3073/1), additional syntypes in NHM (NHMUK 1904.6.25.8).

Cocculinella minutissima—Thiele, 1909: 22, pl. 1, figs 3, 8, pl. 4, figs 7, 8. B.A. Marshall, 1985: 143. Haszprunar, 1988: 2 (anatomy). Sasaki, 2008: 153, fig. 3D.

Distribution. Indo-West Pacific; local material recorded from central Zululand (off Mission Rocks) to Transkei (off Mgazi River); 100–300 m (no data for living specimens in South Africa).

FAMILY: LEPETELLIDAE Dall, 1882

SUBFAMILY: LEPETELLINAE Dall, 1882

#*Lepetella* Verrill, 1880. Type species (m.): *Lepetella tubicola* Verrill & Smith, 1880.

Lepetella sp.—new record

(Figure 3C, D)

Cocculinidae sp. 3834: Jay, 2014.

Distribution. Réunion and northern Zululand (off Kosi Bay) to central KwaZulu-Natal (off Umlaas Canal); 50–250 m (no data for living specimens).

Notes. Local material comprises only dead shells. Since it is evidently impossible to identify *Lepetella* species using shell characters alone (Dantart & Luque 1994), further progress in identifying South African specimens must await the collection of living specimens. These are usually to be found in or on the tubes of polychaete worms (Hickman 1983).

SUBFAMILY CHORISTELLINAE Bouchet & Warén, 1979

#*Choristella* Bush, 1879. Type species (o.d.) *Choristella leptalea* Bush, 1897.

Choristella sp.—new record

Distribution. A single empty, somewhat damaged shell has been dredged on the Agulhas Bank (off Cape St Francis, E. Cape), 210 m.

Notes. The fragile, smooth, globose, white shell, with a deeply channelled suture and distinct umbilical carina indicate that this material is referable to *Choristella*. The specimen also resembles *Trenchia agulhasae* (Clarke, 1961) [*Seguenzioidea incertae sedis* (McLean 1992; Kano *et al.* 2009)], but that species occurs at abyssal depths and is smaller than the present specimen (diameter 3.0 mm vs. 4.5 mm). It also has a basal carina in addition to the umbilical carina. The poor quality of the specimen does not permit more in-depth evaluation, but I mention it to draw attention to the probable occurrence of *Choristella* in South African waters. Living specimens are to be sought inside spent egg cases of elasmobranch fish, where they feed on the inner layers of the capsule.

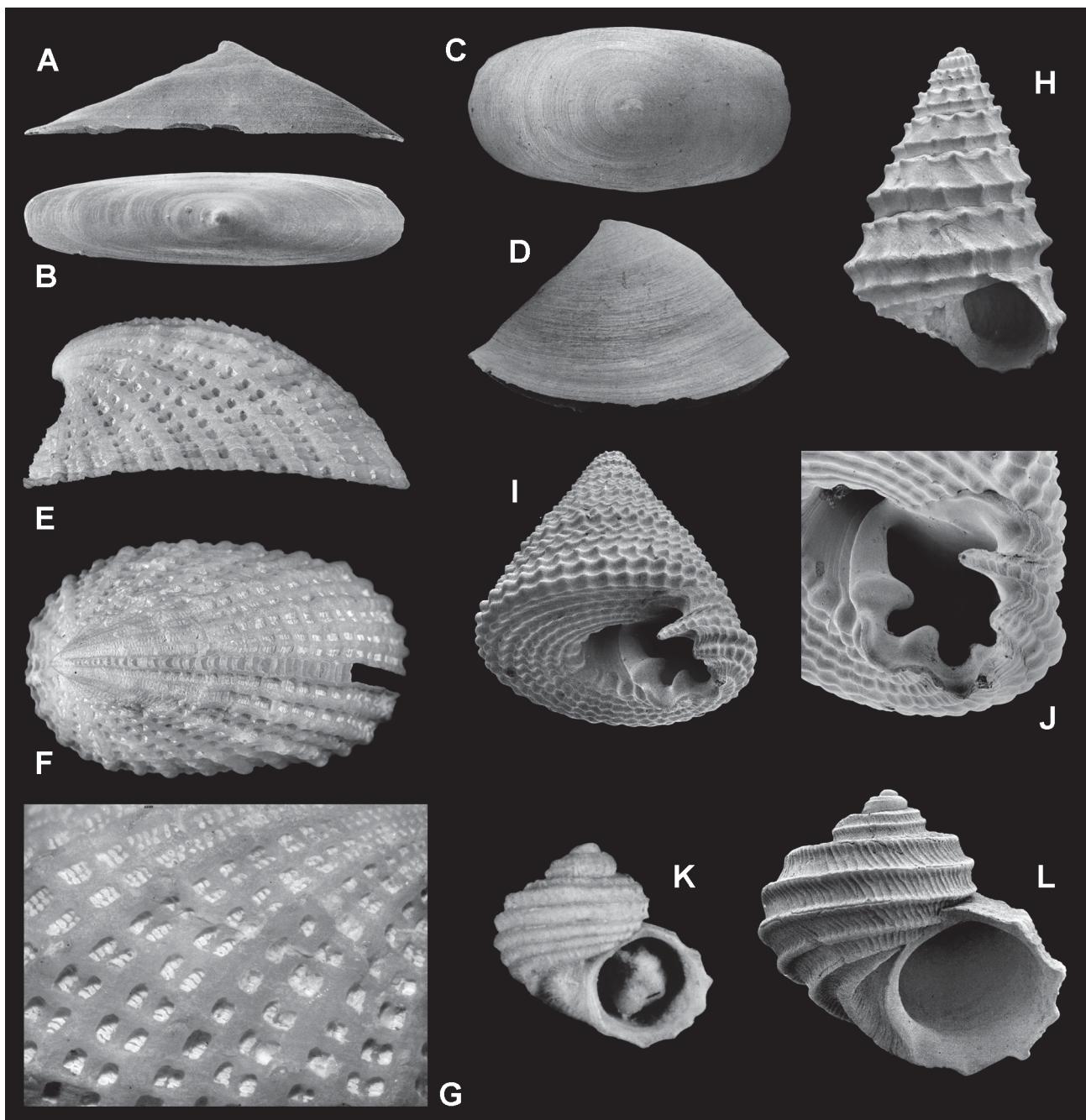


FIGURE 3. **A, B,** *Cocculinella minutissima* (E.A. Smith, 1904), off Cape St. Lucia, KwaZulu-Natal, 160–180 m, length 3.8 mm (NMSA E3091). **C, D,** *Lepetella* sp., NE of Gipsy Hill, KwaZulu-Natal, 63–70 m, length 4.1 mm (NMSA S3478). **E–G,** *Emarginula decorata* Deshayes, 1863, off Boteler Point, KwaZulu-Natal, 53 m, length 8.0 mm (NMSA S6867). **H,** *Calliotropis acherontis* B.A. Marshall, 1979, off Shixini Point, E. Cape, 500 m, height 4.8 mm (NMSA C7073). **I–J,** *Visayaseguenzia compsa* (Melvill, 1904), off Gobey's Point, KwaZulu-Natal, 55–100 m, diameter 2.5 mm (NMSA E1427). **K,** *Parviturbo agulhasensis* (Thiele, 1925), south of Quoin Point, W. Cape, 80 m, diameter 1.9 mm (syntype, ZMB). **L,** *Parviturbo alfredensis* (Bartsch, 1915), Cannon Rocks, Algoa Bay, E. Cape, height 3.3 mm (NMSA E1538). [Images not to scale.]

SUPERFAMILY: PLEUROTOMARIOIDEA Swainson, 1840

FAMILY: PLEUROTOMARIIDAE Swainson, 1840

Bayerotrochus Harasewych, 2002. Type species (o.d.): *Perotrochus midas* Bayer, 1965.

***Bayerotrochus africanus* (Tomlin, 1948)**

Pleurotomaria africana Tomlin, 1948: 2, pl. 1. Barnard, 1951: 118, pl. B, fig. 4, pl. 16, figs 18, 19. Barnard, 1963a: 307. Barnard, 1963b: 156, fig. 2 (radula). Azuma, 1964: 350, text fig. 1 (radula). Kennelly, 1964: 40, text fig. 51. Kennelly, 1969: 52. Kensley, 1973: 24, fig. 20. Abbott & Dance, 1982: 18. Type loc.: off Durban, St'n 237A ($29^{\circ}48'S$: $31^{\circ}23'E$, *fide* Barnard, 1963a), 200 fathoms [366 m]; holotype in SAMC (A29663).

Perotrochus africanus—Kilburn & Rippey, 1982: 34, pl. 5, fig. 1. Wagner & Coomans, 1990: 42, figs 1–3. Anseeuw, 1994: 22, text figs (abnormal shell). Anseeuw & Gotto, 1996: 44, plates on pp. 46–49 (in part, includes *Bayerotrochus indicus* (Anseeuw, 1999)). Nolf & Verstraeten, 2003: 7, 3 pls.

Bayerotrochus africanus—Harasewych, 2002: 272. Steyn & Lussi, 2005: 9, fig. 1. Monsecour & Fraussen, 2008: 87, figs 1–3.

Not *Pleurotomaria africana*—Healy, 1988: 309 (sperm structure) [= *Bayerotrochus westralis* (Whitehead, 1987)].

Distribution. South-western Indian Ocean; from northern Madagascar and Mozambique to KwaZulu-Natal (off Durban) (Monsecour & Fraussen 2008); 150–400 m (no accurate data for living specimens).

Notes. Earlier records from the north-eastern Indian Ocean (Anseeuw & Gotto 1996) refer to *Bayerotrochus indicus* (Anseeuw, 1999).

SUPERFAMILY: SCISSLERELLOIDEA Gray, 1847

FAMILY: ANATOMIDAE McLean, 1989

Anatoma Woodward, 1859. Type species (m.): *Scissurella crispata* (non J. Fleming, 1828) Woodward, 1859 [= *Anatoma aspera* (Philippi, 1844)], for discussion of misidentification see Geiger (2012: 733).

***Anatoma agulhasensis* (Thiele, 1925)**

Scissurella agulhasensis Thiele, 1925: 7[41], pl. 1[13], fig. 2. Barnard, 1963a: 301. Kensley, 1973: 28, fig. 27. Type loc.: Valdivia St'n 104 ($35^{\circ}16'S$: $22^{\circ}26.7'E$), off Mossel Bay, 155 m; original syntypes in ZMB destroyed, neotype in NMSA (W181/T1916), designated by Geiger & Jansen (2004: 6), figured by Herbert (1986: figs 12, 14).

Anatoma agulhasensis—Herbert, 1986: 611, figs 3, 11–14. Herbert, 1987a: 1, figs a, b. Geiger, 2012: 744, figs 597–603 (further references).

Distribution. Chiefly known from the south and east coasts of South Africa (Sodwana Bay to Mossel Bay) (Herbert 1986), but with additional records from Mozambique, the Comoros and Red Sea (Geiger 2012); 48–500 m (living 106–285 m).

***Anatoma finlayi* (Powell, 1937)—new record**

Schizotrochus finlayi Powell, 1937: 176, pl. 49, fig. 2. Type loc.: off Three Kings Islands, New Zealand [$34.00^{\circ}S$: $171.92^{\circ}E$], Discovery St'n 934; holotype in NHM (NHMUK 1962953).

Anatoma herberti Geiger & Sasaki, 2008: 249, figs 1, 2. Type loc.: Réunion, 280–340 m, Marion-Dufresne 32, St'n DC128 ($20.85^{\circ}S$: $55.60^{\circ}E$); holotype in MNHN (20632).

Anatoma finlayi—Geiger, 2012: 877, figs 706–710 (further references).

Distribution. Indo-West Pacific (Geiger 2012); local records from central Zululand (off St Lucia area) and Transkei (off Mgazi River); 160–370 m (no data for living specimens).

***Anatoma japonica* (A. Adams, 1862)**

Anatomus japonicus A. Adams, 1862b: 347. Type loc.: Mino-Sima [Mishima], Yamaguchi Pref., Japan, approx. 113 m (restricted by Herbert 1986: 617); lectotype in NHM (NHMUK 1878.1.28.51/1) designated by Geiger (2012: 930).

Scissurella japonica—Thiele, 1912 in 1912–1919: 17, pl. 2, fig. 14.

Anatoma ?japonica—Herbert, 1986: 617, figs 5, 18–20.

Anatoma japonica—Geiger, 2012: 926, figs 749–760 (synonyms and further references).

Distribution. Indo-West Pacific to southern Transkei (off Whale Rock); local material 20–250 m (living 88 m).

Anatoma munieri (P. Fischer, 1862)—new record

Scissurella munieri P. Fischer, 1862: 390. Type loc.: Seas of China; lectotype in MNHN, designated by Geiger (2006: 30).

Scissurella jacksoni Melvill, 1904: 160, pl. 10, fig. 5. Type loc.: Gulf of Oman (24°58'N: 56°54'E), 156 fathoms [285 m]; syntypes in NHM, NMW and ANSP (Geiger 2012).

Anatoma jacksoni—Bosch *et al.*, 1995: 28, fig. 2.

Anatoma munieri—Sasaki, 2008: 155, fig. 2D. Geiger, 2012: 986, figs 801–807 (additional synonyms and references).

Distribution. Indo-West Pacific to central Zululand (off Cape St Lucia); local material 60–82 m (living 63–70 m).

Anatoma tabulata (Barnard, 1964)

Scissurella tabulata Barnard, 1964: 21, figs 2e, f. Kensley, 1973: 28. Type loc.: off Cape Natal [Durban], 440 fathoms [805 m]; holotype (broken) in SAMC (A9335, not A9345).

Anatoma tabulata—Herbert, 1986: 619. Geiger, 2012: 742, figs 595, 596.

Distribution. Known only from the type locality and off south-eastern Madagascar (Geiger 2012); 184–805 m (no data for living specimens).

Anatoma yaroni Herbert, 1986

Anatoma yaroni Herbert, 1986: 613, figs 1, 2 (radula), 4 (protoconch), 15–17. Geiger, 2012: 1131, figs 932–936 (further references). Type loc.: off Shixini Point, Transkei (32°31.7'S: 28°52.7'E), 490 m; holotype in NMSA (C6590/T3258).

Distribution. South-western Indian Ocean, from Mayotte, Madagascar and Réunion, south to E. Cape (off Kei River); 112–1200 m (living 295–500 m).

FAMILY: SCISSURELLIDAE Gray, 1847

Scissurella d'Orbigny, 1824. Type species (s.d. Gray 1847): *Scissurella laevigata* d'Orbigny, 1824 [= *Scissurella costata* d'Orbigny, 1824].

Scissurella jucunda E.A. Smith, 1890

Scissurella jucunda E.A. Smith, 1890: 311, pl. 24, figs 22, 22a. Thiele, 1912 in 1912–1919: 7, pl. 1, figs 12, 13. Thiele, 1925: 8[42]. Rosewater, 1975: 9. Herbert, 1986: 620, figs 8, 21–24. Herbert, 1987a: 1, figs e–f. Geiger, 2012: 204, figs 100–107, pl. 3B (further references). Type loc.: St Helena [probably rafted on kelp from W. Cape]; lectotype in NHM (NHMUK 1889.10.1.1575), designated by Herbert (1986: 621).

Scissurella jucunda [non E.A. Smith, 1890] E.A. Smith, 1910: 207, pl. 8, figs 2, 2a. Bartsch, 1915: 175. Thiele, 1925: 8[42]. Type loc.: four miles south of Port Elizabeth; lectotype in NHM (NHMUK 1911.8.30.43), designated by Geiger (2012: 204).

Scissurella smithi Thiele, 1912 in 1912–1919: 7, pl. 1, figs 14, 15 [replacement name for *Scissurella jucunda* E.A. Smith, 1910, non 1890]. Thiele, 1925: 8[42]. Tomlin, 1926: 296. Turton, 1932: 204, no. 1414. Barnard, 1963a: 301. Kensley, 1973: 28, fig. 28.

Distribution. Tanzania, Mauritius and southern Madagascar, the south and east coasts of South Africa (southern Zululand to False Bay), St Helena and Ascension Island (Geiger 2012); living LST and shallow subtidal.

Scissurella maraisorum Geiger, 2006

Scissurella maraisorum Geiger, 2006: 10, figs 7, 8. Geiger, 2012: 232, figs 130–132. Type loc.: Aliwal Shoal, KwaZulu-Natal, 20 m (30.250°S: 30.817°E); holotype in NMSA (W3498/T1616).

Distribution. Central KwaZulu-Natal (off Scottburgh) to Pondoland (off Mbotyi) (Geiger 2012); 20–100 m (no data for living specimens).

***Scissurella rota* Yaron, 1983**

Scissurella rota Yaron, 1983a: 268, pl. 3. Herbert, 1986: 622, figs 7, 25–27. Bosch *et al.*, 1995: 28, fig. 4. Geiger, 2012: 296, figs 185–190, pls. 2F, 3A (further references). Type loc.: Abulat Is., southern Red Sea; holotype in MNHN.

Distribution. Central and western Indian Ocean south to E. Cape (Port Alfred) (Geiger 2012); beach-drift to 60 m (living LST–26 m).

Notes. Geiger (2012) recorded *Scissurella reticulata* Philippi, 1853 from South Africa based on literature records of *S. rota* (Herbert 1986). However, he listed the same records under *S. rota*. The coarse sculpture of the specimens concerned (Herbert 1986: figs 25–27) clearly points to them being referable to *S. rota*. *S. reticulata* is not currently known to occur in South Africa.

***Scissurella sudanica* Bandel, 1998**

Scissurella sudanica Bandel, 1998: 14, pl. 3, figs 2–4. Geiger, 2012: 321, figs 202–207 (further references). Type loc.: Port Sudan, Red Sea; holotype in SGPIH (3870).

Distribution. Scattered records in the Red Sea and western Indian Ocean, with one record from E. Cape (Coffee Bay area, southern Transkei) (Geiger 2012).

Notes. South African record based on material in AMS.

Sinezona Finlay, 1926. Type species (o.d.): *Schismope brevis* Hedley, 1904.

***Sinezona doliolum* Herbert, 1986**

Sinezona doliolum Herbert, 1986: 625, figs 9, 28–31. Geiger, 2012: 438, figs 323–326 (further references). Type loc.: off Mncwasa Point, Transkei [E. Cape] (32°06.2'S: 29°06.5'E), 68 m; holotype in NMSA (C8471/T3274).

Distribution. KwaZulu-Natal south coast (off Park Rynie) to southern Transkei (off Qora River), also recorded from Mauritius; shallow subtidal to 165 m (no data for living specimens).

Notes. *Sinezona doliolum* is the type species of the genus *Daizona* Bandel, 1998, but this is not considered distinct from *Sinezona* (Geiger 2012).

***Sinezona insignis* (E.A. Smith, 1910)**

Schismope insignis E.A. Smith, 1910: 208, pl. 8, figs 4, 4a. Thiele, 1912 in 1912–1919: 24, pl. 3, figs 19, 20. Bartsch, 1915: 176. Turton, 1932: 204, no. 1416. Barnard, 1963a: 302. Kensley, 1973: 28, fig. 29. Herbert, 1986: 626, figs 10, 32–35. Herbert, 1987a: 1, figs g, h. Geiger, 2012: 468, figs 347–351 (further references). Type loc.: four miles south of Port Elizabeth, E. Cape; lectotype in NHM (NHMUK 1911.8.30.27), designated by Geiger (2012: 468).

Not *Sinezona insignis*—Kay 1979: 39, figs 7c (radula), 9d–f [= *Sinezona kayae* Geiger & McLean, 2010].

Distribution. Central KwaZulu-Natal (Scottburgh) to W. Cape (False Bay), as well as Angola and islands in the south Atlantic (Ascension, Gough and St Helena) (Herbert 1986, Geiger 2012); living LST and shallow subtidal.

Sukashitrochus Habe & Kosuge, 1964. Type species (o.d.): *Scissurella carinata* A. Adams, 1862.

***Sukashitrochus dorbignyi* (Audouin, 1826)**

scissurella Dorbignii [sic] Audouin, 1826: 182. Type loc.: Suez, Gulf of Suez (designated by Yaron 1983a: 267); lectotype in MNHN, designated by Yaron (1983a: 267).

Schismope carinata (non A. Adams, 1862)—E.A. Smith, 1910: 207, pl. 8, fig. 3.

Sinezona armillata Yaron, 1983a: 272, pl. 6, figs 1–4. Type loc.: Jeddah, Red Sea; holotype in NHMW (39.954).

Sinezona tricarinata Yaron, 1983a: 273, pl. 7, figs 1–4. Type loc.: Ghardaqa [Hurghada], Red Sea; holotype in NHMW (62.639a).

Sukashitrochus maraisi Herbert, 1986: 629, figs 6, 36–39. Herbert, 1987a: 1, figs c, d. Type loc.: Mzamba, Transkei [E. Cape], beach-drift; holotype in NMSA (D684/T3271).
Sukashitrochus dorbignyi—Geiger, 2012: 616, figs 479–485, pl. 3C (further references).

Distribution. Primarily occurs in the western and central Indian Ocean, extending south to KwaZulu-Natal and Pondoland (Mzamba) (Geiger 2012); local material beach-drift to 100 m (living 36 m).

SUPERFAMILY: HALIOTOIDEA Rafinesque, 1815

FAMILY: HALIOTIDAE Rafinesque, 1815

Haliotis Linnaeus, 1758. Type species (s.d. Montfort 1810): *Haliotis asinina* Linnaeus, 1758.

Following Geiger & Owen (2012) I have not assigned the South African *Haliotis* species to subgenera, due to the lack of a robust phylogenetic framework upon which to base subdivision of the genus. Surprisingly, given the morphological diversity evident, the five species comprising the largely endemic South African radiation cluster as a monophyletic lineage in molecular analyses (Bester-van der Merwe *et al.* 2012). If further research with a broader sampling of taxa confirms this, then two names are available for this group, *Padollus* Montfort, 1910 [type species (o.d.): *Padollus rubicundus* Montfort, 1810 (*non* Röding, 1798) = *Haliotis parva*] and *Euhaliotis* Wenz, 1938 [type species (o.d.): *Haliotis midae*]. Since *Padollus* is the older name, it has priority over *Euhaliotis*. *H. pustulata* may be referable to *Sulculus* H. Adams & A. Adams, 1854, whereas the affinity of *H. unilateralis* is uncertain.

Haliotis alfredensis Bartsch, 1915

Haliotis pertusa (*non* Reeve, 1846)—G.B. Sowerby (III), 1900: 6. E.A. Smith, 1903a: 391.

Haliotis alfredensis Bartsch, 1915: 175, pl. 24, figs 7, 8. Tomlin, 1926: 296. Tomlin, 1927: 81. Owen, 2006b. Marais, 2011: 28. Geiger & Owen, 2012: 70, pl. 1 and fig. 31. Type loc.: Port Alfred, E. Cape; holotype in USNM (250517).

Haliotis speciosa (*non* Reeve, 1846)—Talmadge, 1958: 278. Kennelly, 1964: 52. Kaicher, 1981: card 2870. Richards, 1981: 32, pl. 6, fig. 30. Abbott & Dance, 1982: 23. Jacks, 1983: 3, fig. 5. Muller, 1986. Cortie, 1998: 8, fig. H5. Geiger, 1998: figs 30, 31. Steyn & Lussi, 1998: 8, fig. 5. Geiger, 2000: 72, figs 14, 159, 160. Geiger & Poppe, 2000: 85, pl. 15. Steyn & Lussi, 2005: 11, no. 8. Branch *et al.* 2010: 164, fig. 71.2.

Haliotis speciosum—Barnard, 1963a: 306. Kensley, 1973: 26, fig. 26.

Haliotis speciosa form *alfredensis*—Kaicher, 1981: card 2893 (holotype *H. alfredensis*).

Distribution. Pondoland (Mbotyi) to Port Alfred; living on subtidal reefs. Records from Cape Town and KwaZulu-Natal are dubious.

Notes. This South African species has long been known under the name *H. speciosa* Reeve, 1846. However, that name is now considered referable to the Senegalese form of *H. tuberculata* Linnaeus, 1758 (Owen 2006b). The valid name for the South African material is *H. alfredensis* Bartsch, 1915.

Haliotis midae Linnaeus, 1758

Haliotis midae Linnaeus, 1758: 779, no. 647. Linnaeus, 1767: 1255, no. 740. Krauss, 1848: 93. Martens, 1874: 128, no. 93. Pilsbry, 1890: 112, pl. 8, figs 43, 44. G.B. Sowerby (III), 1892: 46. Odhner, 1923: 5. Barnard, 1963a: 302, figs 25a–c, 26. Kennelly, 1964: 51, pl. 2, fig. 5. Day, 1969: 152. Kensley, 1973: 26, fig. 22. Kaicher, 1981: card 2846. Richards, 1981: 32, pl. 6, fig. 33. Abbott & Dance, 1982: 21. Kilburn & Rippey, 1982: 34, pl. 5, fig. 2. Jacks, 1983: 3. Muller, 1986. Cortie, 1998: 9, fig. H7. Steyn & Lussi, 1998: 8, fig. 2. Geiger, 2000: 70, figs 14, 142–145, 148. Geiger & Poppe, 2000: 67, pls. 9, 10. Steyn & Lussi, 2005: 9, no. 3. Owen, 2007b. Branch *et al.*, 2010: 164, fig. 71.5. Marais, 2011: 27. Geiger & Owen, 2012: 104, pl. 40 and fig. 60 (further references). Type loc.: not originally given [Geiger & Poppe (2000) and Geiger & Owen (2012) stated that the type locality was 'Indian Ocean and Cape of Good Hope', by original designation, but no locality was given in either Linnaeus 1758 or 1767]; lectotype in LSL (575), designated by Geiger & Poppe (2000: 67).

Haliotis capensis Dunker in Philippi, 1844 in 1842–1845: 120, pl. 1, figs 4, 5. Pilsbry, 1890: 114, pl. 50, figs 6–8. Type loc.: 'Caput Bonae Spei' [Cape of Good Hope]; type material perhaps in ZMB.

Haliotis midae var. *elatior* Pilsbry, 1890: 113, pl. 21, figs 17–21. Kaicher, 1981: card 2847 (syntypes). Type loc.: not given; two syntypes in ANSP.

Distribution. Western Transkei (Dwesa) to Saldanha Bay; shallow subtidal, rarely deeper than 10 m. Introduced to the Namibian coast (Luderitz area), but wild populations evidently not established.

Haliothis parva Linnaeus, 1758

Haliothis parva Linnaeus, 1758: 780, no. 653. Krauss, 1848: 94. Pilsbry, 1890: 120, pl. 14, fig. 74. G.B. Sowerby (III), 1892: 46. Kennelly, 1964: 51, pl. 3, fig. 7. Kaicher, 1981: card 2825. Richards, 1981: 32, pl. 6, fig. 32. Abbott & Dance, 1982: 21. Kilburn & Rippey, 1982: 34, pl. 5, fig. 3. Jacks, 1983: 3, fig. 1. Muller, 1986. Cortie, 1998: 8, fig. H1. Steyn & Lussi, 1998: 8, fig. 3. Geiger, 2000: 72, figs 14, 154–156. Geiger & Poppe, 2000: 69, pls. 11, 12. Ardvovini & Cossignani, 2004: 19, 69. Steyn & Lussi, 2005: 10, no. 5. Branch *et al.*, 2010: 164, fig. 71.3. Marais, 2011: 28. Geiger & Owen, 2012: 108, pl. 45 and fig. 64 (additional synonyms and references). Type loc.: ‘*In O. Africanae*’ [in the ocean of Africa]; type material in UUZM (Wallin 2001), none in LSL.

Haliothis cingulata Röding, 1798: 13, no. 159/13. Type loc.: not given; type material possibly in MDNG.

Haliothis rubicunda Röding, 1798: 14, no. 160/14. Talmadge, 1959: 29. Type loc.: not given; type material possibly in MDNG.

?*Haliothis canaliculata* Fischer von Waldheim, 1807: 243. Geiger, 1998: 99. Type loc.: unknown; no type material in ZMMU (Ivanov *et al.* 1993).

Padollus rubicundus Montfort, 1810: 115. Type loc.: ‘des côtes d’Afrique’ [the coasts of Africa]; type material probably lost.

Haliothis canaliculata Lamarck, 1822a: 217, no. 13. Mermod & Binder, 1963: 151, fig. 217 (syntype). Type loc.: ‘Océan Indien?’; four syntypes in MHNG.

Haliothis carinata Swainson, 1822: 2. Type loc.: unknown; location of type material unknown.

Haliothis kraussi Turton, 1932: 203, pl. 53, no. 1413. Type loc.: Port Alfred, E. Cape; holotype probably in OXUM, but verification required.

Haliothis parvum—Barnard, 1963a: 305, fig. 25d. Day, 1969: 152. Kensley, 1973: 26, fig. 23.

Distribution. Southern Cape coast, from East London area to False Bay; LST and shallow subtidal to 23 m. Records from Namibia (Geiger 2000) and Benguela, southern Angola (Ardovini & Cossignani 2004) seem improbable.

Haliothis queketti E.A. Smith, 1910

Haliothis (Padollus) queketti E.A. Smith, 1910: 206, pl. 8, figs 1, 1a. Type loc.: Isezela, KwaZulu-Natal; holotype in NHM (NHMUK 1913.11.17.1).

Haliothis queketti—Barnard, 1963a: 306. Kennelly, 1964: 52. Day, 1969: 152. Kensley, 1973: 26, fig. 24. Kaicher, 1981: card 2836. Richards, 1981: 32, pl. 6, fig. 31. Kilburn & Rippey, 1982: 35. Jacks, 1983: 3, fig. 3. Muller, 1986. Cortie, 1998: 8, fig. H2. Geiger, 1998: figs 24, 25. Steyn & Lussi, 1998: 8, fig. 4. Geiger & Pisor, 1999: 105, fig. 1a–c. Geiger, 2000: 70, figs 14, 161, 162. Geiger & Poppe, 2000: 74, pl. 13. Steyn & Lussi, 2005: 11, no. 7. Branch *et al.*, 2010: 164, fig. 71.4. Geiger & Owen, 2012: 115, pl. 51.

Not *Haliothis queketti*—Abbott & Dance 1982: 21 [=*Haliothis melculus* form *ethologus* (Iredale, 1927)].

Distribution. Southern Zululand (Port Durnford) to E. Cape (Port Alfred); living shallow subtidal and near-shore reefs to 15 m. Also recorded from Somalia (Geiger & Pisor 1999).

Haliothis rugosa pustulata Reeve, 1846

Haliothis pustulata Reeve, 1846: pl. 15, sp. 52. G.B. Sowerby (II), 1882: 28, pl. 440a, fig. 112. Lamy, 1909: 333. Kilburn, 1972: 391. Talmadge, 1974: 412. Kaicher, 1981: card 2842. Jacks, 1983: fig. 4. Muller, 1986. Cortie, 1998: 9, fig. H6. Geiger, 2000: 73, figs 14, 17–20. Geiger & Poppe, 2000: 73, pl. 17. Pickery & Verbinne, 2004: 20, figs 1–21. Steyn & Lussi, 2005: 10, no. 6. Geiger & Owen, 2012: 113, pl. 50 (further references). Type loc.: unknown; holotype in NHM (NHMUK 1950.3.16.64).

Haliothis bistrigata (non Gmelin, 1791) =*H. tuberculata* Linnaeus, 1758)—Barnard, 1963a: 307.

Haliothis (Sulculus) pustulata—Kilburn, 1972: 391.

Haliothis rugosa pustulata—Owen, 2013: 189, figs 3.4–6, 3.14.

Distribution. East Africa, from the Red Sea and Yemen south to central KwaZulu-Natal (Shaka’s Rock) and Madagascar (Owen 2013); living shallow subtidal and near-shore reefs. Introduced to the Mediterranean.

Notes. Although long considered a distinct species, the latest opinion (Owen 2013) is that *pustulata* should be

considered the continental subspecies of the Mascarene *H. rugosa*. The similarity and possible synonymy of the two taxa was earlier noted by Herbert (1990a).

***Haliothis spadicea* Donovan, 1808**

Haliothis spadicea Donovan, 1808: pl. 6. Kensley, 1973: 26, fig. 25. Kaicher, 1981: card 2875, syntype of *sanguinea* Hanley, 1840. Richards, 1981: 32, pl. 6, fig. 29. Abbott & Dance, 1982: 21. Kilburn & Rippey, 1982: 35, pl. 5, fig. 4. Jacks, 1983: 3, fig. 2. Muller, 1984. Muller, 1986: 71 (discussion of authorship), fig. 4. Wells & Kilburn, 1986: 455. Cortie, 1998: 8, figs H3, H4. Steyn & Lussi, 1998: 8, fig. 1. Geiger, 2000: 63, 72, figs 14, 151–153. Geiger & Poppe, 2000: 84, pl. 14. Branch *et al.*, 2010: 164, fig. 71.1. Marais, 2011: 28. Geiger & Owen, 2012: 126, pl. 62. Type loc.: not given; location of type material not known.

?*Haliothis sinuata* Perry, 1811: pl. 52, fig. 2. Geiger, 1998: 100. Type loc.: not given; location of type material not known.

Haliothis sanguinea Hanley, 1840: 60, frontispiece fig. 5. Krauss, 1848: 94. Martens, 1874: 128, no. 94. Pilsbry, 1890: 114, pl. 18, fig. 6. G.B. Sowerby (III), 1892: 46. Macpherson, 1953: 169, pl. 1 (W. Australia). Kennelly, 1964: 51, pl. 2, fig. 6. Type loc.: not given; one syntype in NHM (NHMUK 1912.6.18.31), illustrated by Kaicher (1981: card 2875).

Haliothis ficeiformis Menke, 1844: 98. Type loc.: ‘ad promontorium bonae spei’ [Cape of Good Hope]; type material probably lost.

?*Haliothis pertusa* (non Reeve, 1846)—Bartsch, 1915: 175. Turton, 1932: 203, no. 1409. Kennelly, 1964: 52.

?*Haliothis nebulata* (non Reeve, 1846)—Turton, 1932: 203, no. 1410.

Haliothis sanguineum—Barnard, 1963a: 304. Day, 1969: 152.

Distribution. Central KwaZulu-Natal (Tongaat) to Table Bay; living LST and shallow, near-shore reefs. A record from Western Australia (Macpherson 1953; Wells & Kilburn 1986) was rejected by Geiger (2000).

***Haliothis unilateralis* Lamarck, 1822**

Haliothis unilateralis Lamarck, 1822a: 217, no. 11. Geiger, 1996: 341, figs 2, 4. Geiger & Poppe, 2000: 91, pl. 19. Pickery & Verbinnen, 2004: 21, figs 22–26. Owen, 2007a. Geiger & Owen, 2012: 136, pl. 72 (additional synonyms and references). Type loc.: ‘les mers de Timor et de la Nouvelle-Hollande’ [the seas of Timor and of Australia], evidently erroneous; neotype in MHNG (18020) designated by Geiger (1996: 345).

Haliothis barbouri Foster, 1946: 40, pl. 23. Owen, 2006a: 183, 184, pl. 4. Deuss *et al.*, 2013: 131, fig. m. Type loc.: ‘Praia de Copacabana’, Brazil [erroneous]; holotype in MCZ (152469).

?*Haliothis queckettii* [sic] (non E.A. Smith, 1910)—Paes da Franca, 1960b: 45. Macnae & Kalk, 1969: 127.

Haliothis sp.—Moura, 1972: 19, pl. 2, fig. 1.

Haliothis (Sulculus) unilateralis—Yaron, 1983b: 489.

Haliothis ovina (non Gmelin, 1791)—Steyn & Lussi, 2005: 10, no. 4.

Distribution. Red Sea and the western Indian Ocean (Geiger & Owen 2012), south to central Zululand (Leadsman Shoal); local material 7–105 m, mostly <50 m (living 7–50 m).

Notes. Considerable confusion has surrounded the identity of small haliotids (max. dimension <40 mm) occurring in northern KwaZulu-Natal and southern Mozambique, but Owen (2007a) has provided good evidence to show that the material is referable to *H. unilateralis*. *Haliothis ovina* Gmelin, 1791, under which name Steyn & Lussi (2005) recorded these specimens, is larger, more robust and distributed primarily in the central Indo-West Pacific (Geiger & Owen 2012).

SUPERFAMILY: FISSURELLOIDEA J. Fleming, 1822

FAMILY: FISSURELLIDAE J. Fleming, 1822

SUBFAMILY: DIODORINAE Odhner, 1932

Cosmetalepas Iredale, 1924. Type species (o.d.): *Fissurella concatenata* Crosse & Fischer, 1864.

***Cosmetalepas africana* (Tomlin, 1926)**

Fissurellidea concatenata (non Crosse & Fischer, 1864)—G.B. Sowerby (III), 1886a: 12. G.B. Sowerby (III), 1892: 48. E.A. Smith, 1904a: 25.

Lucapina concatenata—Thiele, 1925: 7[41].

Megatebennus africanus Tomlin, 1926: 296, pl. 16, fig. 10. Kensley, 1973: 32, fig. 48. Richards, 1981: 34, pl. 7, fig. 45. Type loc.: Port Alfred, E. Cape; holotype in NMW (1955.158.73).

Fissurellidaea [sic] (Megatebennus) africana—Turton, 1932: 207, no. 1437. Kennelly, 1964: 53, pl. 3, fig. 14.

Megatebennus (Cosmetalepas) africanus—Barnard, 1963a: 289.

Cosmetalepas africana—Kilburn & Rippey, 1982: 35, pl. 6, fig. 3. Herbert, 1988a: 492, figs 1–7 (external anatomy and radula). Steyn & Lussi, 1998: 12, fig. 21. Marais, 2011: 25.

Distribution. Northern Zululand (Sodwana Bay) to Cape Agulhas; beach-drift to 165 m (living shallow subtidal to 90 m).

Diodora Gray, 1821. Type species (m.): *Patella apertura* Montagu, 1803 [= *Patella graeca* Linnaeus, 1758].

Diodora calyculata (G.B. Sowerby (I), 1823)

Fissurella calyculata G.B. Sowerby (I), 1823 in 1821–1834: 21, pl. 123 (147), fig. 4. G.B. Sowerby (I), 1835b: 3, figs 19, 21. Krauss, 1848: 68. G.B. Sowerby (III), 1892: 47. Type loc.: not given; syntypes in NHM (NHMUK 1975058).

Fissurella (Glyphis) calyculata—Martens, 1904: 55.

Fissuridea calyculata—Bartsch, 1915: 177. Thiele, 1925: 6[40].

Diodora calyculata—Barnard, 1963a: 290. Kensley, 1973: 29, fig. 32. Christiaens, 1974: 92. Richards, 1981: 33, pl. 7, fig. 36. Kilburn & Rippey, 1982: 35, pl. 6, fig. 5. Steyn & Lussi, 1998: 10, fig. 9. Marais, 2011: 26.

Glypis calyculata—Kennelly, 1964: 53, pl. 3, fig. 17.

Distribution. Southern KwaZulu-Natal (Port Edward) to False Bay; beach-drift to 420 m (living 10–45 m).

Diodora crucifera (Pilsbry, 1890)

Fissurella cruciata (non Gould, 1846) Krauss, 1848: 67, pl. 4, fig. 9. G.B. Sowerby (III), 1892: 47. Type loc.: ‘*In litore natalensi*’ [on the shore of Natal]; lectotype in SMNS (MT 111), designated by Janus (1961: 2).

Glypis crucifera Pilsbry, 1890: 225, pl. 32, figs 27–31 [replacement name for *Fissurella cruciata* (non Gould, 1846) Krauss, 1848]. E.A. Smith, 1903a: 391.

Diodora crucifera—Tomlin, 1932: 160. Barnard, 1963a: 293. Kensley, 1973: 29, fig. 33. Christiaens, 1974: 94. Richards, 1981: 33, pl. 7, fig. 37. Kilburn & Rippey, 1982: 35, pl. 6, fig. 6. Christiaens, 1987: 35. Drivas & Jay, 1988: 32, pl. 1, fig. 1. Steyn & Lussi, 1998: 10, fig. 14.

Diodora (Diodora) crucifera—Janus, 1961: 2, pl. 1, figs 1–3.

Distribution. Northern and western Indian Ocean to E. Cape (southern Transkei, occasionally reaching Port Alfred); beach-drift to 300 m (living from LST to 85 m).

Notes. The distribution of this species and its relationships to other elongate species of *Diodora* described from the Indian Ocean require further study. Christiaens (1987) cited localities widely distributed in the Indo-West Pacific, but was unsure whether one or more species might be involved.

Diodora elevata (Dunker, 1846)

Fissurella elevata Dunker in Philippi, 1846 in 1845–1847: 67, pl. 2, fig. 4. Krauss, 1848: 67. G.B. Sowerby (III), 1892: 47. Type loc.: ‘*Caput Bonae Spei*’ [Cape of Good Hope]; type material perhaps in ZMB.

Fissurella fumata (non Reeve, 1850)—Watson, 1886: 34. G.B. Sowerby (III), 1889b: 154. G.B. Sowerby (III), 1892: 48.

Fissurella similis (non G.B. Sowerby (II), 1862)—G.B. Sowerby (III), 1894: 373. G.B. Sowerby (III), 1897: 19.

Glypis elevata—E.A. Smith, 1901: 105. E.A. Smith, 1903a: 391. Martens, 1904: 55, 57. Turton, 1932: 208, no. 1440.

Fissurella (Glypis) elevata—Martens, 1904: 55.

Fissuridea elevata—Bartsch, 1915: 177.

Fissuridea algoensis Thiele, 1925: 6[40]. Type loc.: *Valdivia* St'n 100 (34°08.9'S: 24°59.3'E), ‘Algoa-Bucht’ [actually St Francis Bay]; two syntypes in ZMB.

Diodora elevata—Tomlin, 1932: 160. Barnard, 1963a: 291, fig. 22h. Kennelly, 1964: 52, pl. 3, fig. 11. Kensley, 1973: 30, fig. 34. Christiaens, 1974: 93. Richards, 1981: 33, pl. 7, fig. 38. Kilburn & Rippey, 1982: 35, pl. 6, fig. 7. Steyn & Lussi, 1998: 10, fig. 10. Marais, 2011: 26.

Glyphis anima Turton, 1932: 208, pl. 54, no. 1441. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

?*Fissurella tenuistriata* (non G.B. Sowerby (II), 1886)—Turton, 1932: 206, no. 1426.

Distribution. Pondoland (Port Grosvenor) to Atlantic Cape (Saldanha Bay); beach-drift to 420 m (living 11–90 m).

***Diodora elizabethae* (E.A. Smith, 1901)**

Fissurella sieboldii (non Reeve, 1850)—G.B. Sowerby (III), 1889b: 154. G.B. Sowerby (III), 1892: 47.

Glyphis elizabethae E.A. Smith, 1901: 104, pl. 1, fig. 12. E.A. Smith, 1903a: 391. Kennelly, 1964: 53, pl. 3, fig. 15. Type loc.: Port Elizabeth; two syntypes in NHM (NHMUK 1889.1.10.21–22), Salvador pers. comm. (iii/2015).

Fissuridea elizabethae—Bartsch, 1915: 177.

Diodora elizabethae—Barnard, 1963a: 290. Kensley, 1973: 30, fig. 35. Richards, 1981: 33, pl. 7, fig. 39. Kilburn & Rippey, 1982: 36, pl. 6, fig. 8. Steyn & Lussi, 1998: 10, fig. 11. Marais, 2011: 26.

Diodora elisabethae [sic]—Christiaens, 1974: 92.

Distribution. Northern Zululand (Kosi Bay) to E. Cape (Jeffreys Bay), exceptionally to W. Cape (Still Bay); beach-drift to 400 m, but mostly less than 100 m (probably living on near-shore reefs).

***Diodora fuscocrenulata* (E.A. Smith, 1906)**

Glyphis fuscocrenulata E.A. Smith, 1906: 56, pl. 8, fig. 6. Type loc.: Port Shepstone and Umkomaas, KwaZulu-Natal; three syntypes in NHM (NHMUK 1906.6.23.15–17), Salvador pers. comm. (iii/2015); one syntype in NMSA (1270/T524).

Diodora fuscocrenulata—Steyn & Lussi, 1998: 10, fig. 15.

Distribution. Central Zululand (Cape Vidal) to E. Cape (Port Alfred); beach-drift to 75 m, rarely more (no data for living specimens).

***Diodora kraussi* Herbert & Warén, 1999**

Fissurella australis (non Philippi, 1845) Krauss, 1848: 67, pl. 4, fig. 10. Vélain, 1877: 120, pl. 4, figs 9, 10. G.B. Sowerby (III), 1892: 47. Type loc.: ‘*In litore natalensi*’ [on the shore of Natal]; type material lost.

?*Fissurella graeca* (non Linnaeus, 1758)—G.B. Sowerby (III), 1897: 19.

Glyphis australis—E.A. Smith, 1910: 208. Turton, 1932: 208, no. 1445. Kennelly, 1964: 53, pl. 3, fig. 19.

Fissuridea australis—Bartsch, 1915: 177.

Diodora australis—Tomlin, 1932: 160. Barnard, 1963a: 292 (in part, includes *D. fuscocrenulata* (E.A. Smith, 1906)). Kensley, 1973: 29, fig. 31. Christiaens, 1974: 93 (in part, includes *D. fuscocrenulata* (E.A. Smith, 1906)). Richards, 1981: 33, pl. 7, fig. 35. Kilburn & Rippey, 1982: 35, pl. 6, fig. 4. Steyn & Lussi, 1998: 10, fig. 8.

Diodora kraussi Herbert & Warén, 1999: 217 [replacement name for *Fissurella australis* (non Philippi, 1845) Krauss, 1848]. Marais, 2011: 26.

Distribution. Northern Zululand (Boteler Point) to E. Cape (Port Alfred); beach-drift to 50 m (living low intertidal and shallow subtidal). Records from Mozambique require confirmation.

Notes. Vélain (1877) recorded this species from Îles St-Paul and Amsterdam in the southern Indian Ocean, but the identity of the material requires confirmation.

***Diodora levicostata* (E.A. Smith, 1914)**

Glyphis levicostata E.A. Smith, 1914: 2, pl. 1, figs 3–5. Type loc.: Tongaat and Port Shepstone, KwaZulu-Natal; one syntype in NHM (NHMUK 1920.10.15.41), Salvador pers. comm. (iii/2015).

Fissurella sculpturata Turton, 1932: 205, pl. 53, no. 1425. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Diodora (Diodora) levicostata—Kilburn, 1972: 392.

Diodora levicostata—Steyn & Lussi, 1998: 10, fig. 16.

Distribution. Southern Zululand (Richards Bay) to E. Cape (Port Alfred); beach-drift to 450 m (no data for living specimens).

***Diodora parviforata* (G.B. Sowerby (III), 1889)**

Fissurella parvi-forata G.B. Sowerby (III), 1889a: 12, pl. 1, fig. 7. G.B. Sowerby (III), 1892: 48, pl. 2, figs 52, 53. Type loc.: St. Simon's Bay [Simonstown, False Bay]; location of type material unknown (could not be found in NHM, Salvador pers. comm. iii/2015).

Fissuridea parviforata—Bartsch, 1915: 177. Thiele, 1925: 7[41]. Tomlin, 1932: 160.

Glyphis parviforata—Turton, 1932: 208, no. 1446. Kennelly, 1964: 53, pl. 3, fig. 18.

Diodora parviforata—Barnard, 1963a: 294. Day, 1969: 153. Kensley, 1973: 30, fig. 36. Christiaens, 1974: 93. Richards, 1981: 33, pl. 7, fig. 40. Kilburn & Rippey, 1982: 36, pl. 6, fig. 9. Steyn & Lussi, 1998: 10, fig. 12. Branch *et al.*, 2010: 172, fig. 75.2. Marais, 2011: 27.

Distribution. E. Cape (Port Alfred) to Atlantic Cape (Saldanha Bay) and perhaps also St Helena and Ascension Is. (Tomlin 1932); beach-drift and shallow subtidal, occasionally living at LST.

***Diodora procurva* Herbert, 1989**

Diodora procurva Herbert, 1989a: 173, figs 1–7. Steyn & Lussi, 2005: 11, no. 9. Type loc.: off Mbashe River, Transkei (32°18.2'S: 29°04.1'E), 200–220 m; holotype in NMSA (E5938/T124).

Distribution. Southern Zululand (off Neil Peak) to southern Transkei (off Qora River); 70–510 m (no data for living specimens).

***Diodora ruppelli* (G.B. Sowerby (I), 1835)—new record**

Fissurella ruppelli G.B. Sowerby (I), 1835a: 128. G.B. Sowerby (I), 1835b: 6, no. 56, figs 65, 75. Type loc.: ‘ad Insulam Nevis, Capt. Powers: in Sinu Arabico Rüppell’; Christiaens (1987: 25) discussed these localities and the figures provided by G.B. Sowerby (I) in *Conchological Illustrations*. He rejected the Nevis Island locality (Leeward Islands) and fig. 65, selecting fig. 75 (Red Sea) as the hypotype. Four possible syntypes in NHM (NHMUK 197579; Christiaens 1987).

Glyphis ruppelli—Pilsbry, 1891 in 1890–1891: 217 (in part, includes several non-synonymous taxa), pl. 39, fig. 8.

Fissurella (Glyphis) ruppelli [sic]—Melvill & Standen, 1898: 79. Lamy, 1909: 332.

Glypis rüppelli [sic]—Odhner, 1919: 14.

Diodora ruppelli [sic]—Viader, 1937: 57.

Fissurella dysoni (non Reeve, 1850)—Braga, 1952: 93: pl. 6, fig. 9.

Diodora ruppelli—Paes da Franca, 1960b: 53, pl. 1, fig. 2. Moura, 1968: 26, pl. 4, fig. 1. Moura, 1970: 63, pl. 2, fig. 1. Barnard, 1963a: 293. Kay, 1979: 42, fig. 11C. D. Christiaens, 1987: 23 (detailed chresonymy), figs 8, 9, 44, 56–58. Jarrett, 2000: 3, fig. 5. Scaperrotta *et al.*, 2013: 30.

?*Diodora lima*—Macnae & Kalk, 1969: 127.

Distribution. Indo-West Pacific to northern Zululand; shallow, near-shore reefs (no local data for living specimens). Melvill & Standen (1898) erroneously recorded this species from the ‘Cape of Good Hope’.

***Diodora spreta* (E.A. Smith, 1901)**

Glypis spreta E.A. Smith, 1901: 104, pl. 1, fig. 18. E.A. Smith, 1903a: 391. Kennelly, 1964: 53, pl. 3, fig. 16. Type loc.: Mossel Bay, Cape Colony; six syntypes in NHM (NHMUK 1889.4.14.2406–2411), Salvador pers. comm. (iii/2015); three syntypes in SAMC (2459).

Fissurella neglecta (non Deshayes, 1830)—G.B. Sowerby (III), 1889a: 12.

Fissurella fimbriata (non Reeve, 1850)—G.B. Sowerby (III), 1889b: 154. G.B. Sowerby (III), 1892: 48.

Fissuridea spreta—Bartsch, 1915: 177.

Diodora spreta—Viader, 1937: 57. Barnard, 1963a: 290, fig. 22g. Kensley, 1973: 30, fig. 38. Christiaens, 1974: 92. Richards, 1981: 33, pl. 7, fig. 41. Kilburn & Rippey, 1982: 36, pl. 6, fig. 10. Steyn & Lussi, 1998: 10, fig. 13. Marais, 2011: 27.

Distribution. South-western Indian Ocean, from northern Mozambique to W. Cape (Cape Agulhas); beach-drift to 260 m, but mostly less than 100 m (living LST to 62 m). A record from Mauritius (Viader 1937) requires confirmation.

SUBFAMILY: EMARGINULINAE Children, 1834¹

Cornisepta McLean & Geiger, 1998. Type species (o.d.): *Fissurisepta antarctica* Egorova, 1972.

Cornisepta onychoides (Herbert & Kilburn, 1986)

Fissurisepta onychoides Herbert & Kilburn, 1986: 24, figs 87–89. Type loc.: off Shixini Point, Transkei (32°31.2'S: 28°52.2'E), 300 m; holotype in NMSA (C6365/T3017).

Cornisepta onychoides—McLean & Geiger, 1998: 24.

Distribution. Central KwaZulu-Natal (off Umlaas Canal) to southern Transkei (off Shixini Point); 250–500 m (no data for living specimens).

Cranopsis A. Adams, 1860. Type species (m.): *Cranopsis pelex* A. Adams, 1860.

McLean & Geiger (1998) treated *Cranopsis* as a full genus, but this was questioned by Aktipis *et al.* (2011). Molecular analyses based upon a broader sampling of species will be needed to clarify this. In *Cranopsis* the mantle skirt is split anteriorly, underlying the seam in the shell that extends ventrally from the foramen. Such a split is absent in *Puncturella* and the mantle skirt is entire (Cowan & McLean 1968).

Cranopsis serraticosta (Herbert & Kilburn, 1986)

Puncturella (Cranopsis) serraticosta Herbert & Kilburn, 1986: 20, figs 71–74. Type loc.: off Shixini Point, Transkei (32°31.6'S: 28°53.0'E), 500 m; holotype in NMSA (C7064/T3013).

Distribution. Only known from the type locality (no data for living specimens).

Emarginella Pilsbry, 1891. Type species (o.d.): *Emarginula cuvieri* Audouin, 1826.

Emarginella sibogae (Schepman, 1908)

Emarginula (Emarginella) sibogae Schepman, 1908: 92, pl. 8, fig. 1. Thiele, 1915 in 1912–1919: 99, pl. 12, figs 1, 2; Van der Bijl *et al.*, 2010: 84, 136. Type loc.: Lirung, Salibabu Island [Maluku, Indonesia], 36 m (lectotype locality); lectotype originally in ZMA, now in RMNH, designated by Herbert & Kilburn (1986: 15, fig. 53, 54, 56).

Emarginella sibogae—Kilburn, 1978: 445, pl. 8a, fig. 1. Herbert & Kilburn, 1986: 15, figs 51–56.

Emarginula sibogae [sic]—Drivas & Jay, 1985: 6, fig. 13.

Distribution. Indonesia to Réunion and Mozambique, south to northern Pondoland (Mzamba); beach-drift to 140 m (living intertidal to 54 m).

Emarginula Lamarck, 1801. Type species (m.): *Emarginula conica* Lamarck, 1801 [=*Patella fissura* Linnaeus, 1758].

Emarginula agulhasensis Thiele, 1925

Emarginula agulhasensis Thiele, 1925: 4[38], pl. 1[1], fig. 1. Kensley, 1973: 30, fig. 39. Kilburn, 1978: 433, pl. 1 (holotype). Herbert & Kilburn, 1986: 4, figs 8–15. Type loc.: Valdivia St'n 104 (35°16'S: 22°26.7'E), Agulhas Bank, off Mossel Bay, 155 m; holotype in ZMB.

Emarginula pulchreclathrata Tomlin, 1932: 162, fig. 4. Kensley, 1973: 30, fig. 42. Kilburn, 1978: 433, 2a (holotype). Type loc.: off Saldanha Bay in 55 fathoms [101 m]; holotype in SAMC (A3617).

Not *Emarginula agulhasensis*: Barnard, 1963a: 296, fig. 23a [=*E. thorektes* Kilburn, 1978].

1. Traditionally credited to Gray, 1834, but see Steiner & Kabat (2001). Petit (2012) did not list the 1834, 28th edition of the *Synopsis of the Contents of the British Museum* as one of Gray's works.

Distribution. Pondoland (off Waterfall Bluff) to Atlantic Cape (off Saldanha Bay); 58–550 m (no data for living specimens).

***Emarginula connelli* Kilburn, 1978**

Emarginula connelli Kilburn, 1978: 437, pl. 4b, f. Herbert & Kilburn, 1986: 6, fig. 16. Type loc.: off Sordwana [Sodwana] Bay, Zululand in 100 m; holotype in NMSA (A5762/T2199).

Distribution. Northern Zululand (off Kosi Bay) to southern Transkei (off Coffee Bay area); 45–270 m (no data for living specimens).

***Emarginula costulata* Deshayes, 1863—new record**

Emarginula costulata Deshayes, 1863: 47, pl. 7[34], figs 3–5. Thiele, 1915 in 1912–1919: 79, pl. 9, fig. 22 (further references). Viader, 1937: 57. Drivas & Jay, 1985: 5, fig. 9. Drivas & Jay, 1988: 32, pl. 1, fig. 4 (not 3 as indicated). Herbert, 1987b: 11, figs 39–42. Singer, 1998: 5. Type loc.: Réunion; lectotype in MNHN, designated by Herbert (1987b: 11). *Emarginula tenuicostata* (non G.B. Sowerby (II), 1863)—Kilburn, 1978: 442, pl. 4c, d, g. Herbert & Kilburn, 1986: 11, fig. 37.

Distribution. South-western Indian Ocean; Mauritius, Réunion and Mozambique, south to northern Zululand (off Dog Point); shallow subtidal to 100 m (living 5–70 m).

Notes. Melvill & Standen (1898) recorded this species from the Madras area, India, with ‘some slight doubt’ regarding the identity of the material.

***Emarginula decorata* Deshayes, 1863—new record**

(Figure 3E, G)

Emarginula decorata Deshayes, 1863: 47, pl. 7[34], figs 6–8. Thiele, 1915 in 1912–1919: 80, pl. 9, figs 23, 24 (further references). Viader, 1937: 57. Drivas & Jay, 1985: 5, fig. 10. Drivas & Jay, 1988: 32, pl. 1, fig. 3 (not 4 as indicated). Singer, 1998: 5. Type loc.: Réunion; holotype MNHN-IM-2000-4754.

Distribution. South-western Indian Ocean; Mauritius, Réunion and Mozambique Channel, south to southern Zululand (off Glenton Reef); shallow subtidal to 215 m (living 23–24 m).

***Emarginula fenestrata* Deshayes, 1863**

Emarginula fenestrella (non Dubois, 1831) Deshayes, 1863: 49. Thiele, 1915 in 1912–1919: 80, pl. 9, figs 25, 26 (further references). Viader, 1937: 57. Drivas & Jay, 1985: 5, fig. 11.

Emarginula fenestrata Deshayes, 1863: pl. 7[34], figs 12–15. Herbert, 1987b: 12, fig. 43. Type loc.: Réunion; type material probably in MNHN.

Distribution. South-western Indian Ocean; recorded from Réunion and northern Zululand (Kosi Bay to Leven Point); 8–78 m (living 8–30 m).

***Emarginula koon* Kilburn, 1978**

Emarginula micans (non A. Adams, 1852)—E.A. Smith, 1910: 209.

Emarginula koon Kilburn, 1978: 439, pls. 5, 10. Herbert & Kilburn, 1986: 6, fig. 6. Steyn & Lussi, 1998: 12, fig. 23. Type loc.: Shelly Beach, near Port Shepstone, KwaZulu-Natal, beach-drift; holotype in NMSA (B147/T2196).

Distribution. Central KwaZulu-Natal (Tongaat) to Pondoland (Mzamba); beach-drift to 12 m (no data for living specimens).

***Emarginula macclurgi* Kilburn, 1978**

Emarginula macclurgi Kilburn, 1978: 443, pl. 7. Herbert & Kilburn, 1986: 6, figs 17–20. Type loc.: off St Lucia Lighthouse, Zululand, in 100 m; holotype in NMSA (A5726/T2190).

Distribution. Central Zululand (off Mission Rocks) to southern Transkei (off Mbashe River); 60–175 m (living 106–175 m).

***Emarginula natalensis* Barnard, 1963**

Emarginula natalensis Barnard, 1963a: 297, fig. 23c. Kensley, 1973: 30, fig. 40. Kilburn, 1978: 435, pl. 3 (lectotype). Herbert & Kilburn, 1986: 6, figs 21–25. Type loc.: off Cape Morgan, 77 fathoms [141 m]; lectotype in SAMC (A9325) designated by Kilburn (1978: 435).

Distribution. Northern Zululand (off Kosi Bay) to E. Cape (off East London); 50–500 m (living 70–140 m).

***Emarginula oppressa* Barnard, 1963**

Emarginula oppressa Barnard, 1963a: 298, fig. 24a. Kensley, 1973: 30, fig. 41. Herbert & Kilburn, 1986: 9, figs 26–29. Type loc.: off Cape Natal [Durban], 54 fathoms [99 m]; holotype in SAMC (A9330).

Emarginella oppressa—Kilburn, 1978: 446, pl. 8b.

Distribution. Northern Zululand (off Kosi Bay) to E. Cape (off Kei River); 60–450 m (living 115 m).

***Emarginula phrygium* Herbert & Kilburn, 1986**

Emarginula phrygium Herbert & Kilburn, 1986: 10, figs 30–34. Type loc.: off Qora River, Transkei (32°34.0'S: 28°49.7'E), 400–420 m; holotype in NMSA (C6844/T3012).

Distribution. Known only from the type locality.

***Emarginula thorektes* Kilburn, 1978**

Emarginula thorektes Kilburn, 1978: 440, pl. 6. Herbert & Kilburn, 1986: 11, figs 35, 36, 38. Type loc.: Shelly Beach, KwaZulu-Natal, beach-drift; holotype in NMSA (A3829/T2193).

Emarginula agulhasensis (non Thiele, 1925)—Barnard, 1963a: 296, fig. 23a.

Distribution. Northern Zululand (off Kosi Bay) to E. Cape (off Cape Morgan); beach-drift to approx. 500 m (living 50 m).

***Emarginula undulata* Melvill & Standen, 1903**

Emarginula undulata Melvill & Standen, 1903: 290, pl. 20, fig. 1. Thiele, 1915 in 1912–1919: 75, pl. 9, figs 10, 11. Herbert & Kilburn, 1986: 12, figs 1–3, 39–44. Singer, 1998: 7. Type loc.: Gulf of Oman (24° 58'N: 56° 54'E), 156 fathoms [285 m]; lectotype in NMW (1955.158.95), designated by Herbert & Kilburn (1986: 12).

Emarginula vadum Barnard, 1963a: 297, figs 23d, 24b. Kensley, 1973: 30, fig. 43. Kilburn, 1978: 444, pl. 4a, e. Type loc.: off Cape Vidal (Zululand), 80–100 fathoms [146–183 m]; holotype in SAMC (A9329).

Distribution. Western Indian Ocean; Gulf of Oman to southern Transkei (off Qolora River); 47–420 m (living 75–120 m).

***Emarginula viridicana* Herbert & Kilburn, 1986**

Emarginula viridicana Herbert & Kilburn, 1986: 12, figs 45–50. Type loc.: off Park Rynie (approx. 30°21'S: 30°51'E), living, 110 m, sponge rubble; holotype in NMSA (B8749/T3021).

Distribution. Northern Zululand (off Boteler Point) to Pondoland (off Mzamba); 74–142 m (living 75–120 m).

#Profundisepta McLean & Geiger, 1998. Type species (o.d.): *Puncturella profundi* Jeffreys, 1877.

Profundisepta voraginosa (Herbert & Kilburn, 1986)—new combination

Puncturella (Puncturella s.l.) voraginosa Herbert & Kilburn, 1986: 18, figs 66–70. Type loc.: off Port Grosvenor, Transkei (31°26.2'S: 29°57.5'E, co-ordinates reversed in original description), 100–115 m; holotype in NMSA (C1296/T3020).

Distribution. Central Zululand (off Cape St Lucia) to southern Transkei (off Shixini Point); 100–500 m (no data for living specimens).

Notes. Whether this taxon is genuinely referable to *Profundisepta* is not certain, but it is clearly closer to this genus than it is to *Puncturella* and hence I refer it to *Profundisepta*.

Puncturella Lowe, 1827. Type species (m.): *Patella noachina* Linnaeus, 1771.

Puncturella capensis Thiele, 1919

Puncturella noachina (non Linnaeus, 1771)—G.B. Sowerby (III), 1903: 231. E.A. Smith, 1906: 57. Barnard, 1963a: 295. Kensley, 1973: 32, fig. 49.

Puncturella fastigiata (non A. Adams, 1853)—Martens, 1904: 50. E.A. Smith, 1906: 57.

Puncturella capensis Thiele, 1919 in 1912–1919: 164, pl. 19, figs 15, 16. Kilburn, 1978: 448, pl. 9a, b. Herbert & Kilburn, 1987: 16, figs 57–65. Type loc.: *Valdivia* St'n 114, 'Simonsbucht' [Simonstown, False Bay], 70 m; holotype in ZMB.

Distribution. Pondoland (off Waterfall Bluff) to False Bay; 70–550 m (living 300–540 m).

Notes. There is a possibility that this taxon is synonymous with *Puncturella analoga* Martens, 1902, which in turn may be a synonym of *P. conica* (d'Orbigny, 1841) and that there is a single circum-Antarctic species.

Pupillaea Gray, 1835. Type species (m.): *Fissurella aperta* G.B. Sowerby (I), 1825.

Pupillaea aperta (G.B. Sowerby (I), 1825)

Fissurella aperta G.B. Sowerby (I), 1825: 31, appendix vi. Type loc.: not given; type material could not be found in NHM (McLean 1984).

Pupillaea aperta—Krauss, 1848: 62, pl. 4, fig. 11. Martens, 1874: 127, no. 62. Martens, 1904: 55, 57. Bartsch, 1915: 176. Odhner, 1932: 304, fig. 41-1 (radula). Kennelly, 1964: 52, pl. 3, fig. 12. McLean, 1984: 29, figs 26, 27 (synonymy). Steyn & Lussi, 1998: 12, fig. 19. Branch *et al.*, 2010: 172, fig. 75.5, 75.5a. Marais, 2011: 27.

Pupillia [sic] *aperta*—G.B. Sowerby (III), 1892: 48.

Fissurellidea (Pupillaea) aperta—Barnard, 1963a: 288, fig. 21e. Day, 1969: 152.

Fissurellidea aperta—Kensley, 1973: 32, fig. 46. Tietz & Robinson, 1974: 48, pls. 48c, 49 (living animal). Richards, 1981: 33, pl. 7, fig. 44. Kilburn & Rippey, 1982: 36, pl. 3, fig. 3, pl. 6, fig. 13. Kensley & Pether, 1986: 150 [fossil].

Distribution. KwaZulu-Natal south coast (Park Rynie) to Table Bay; beach-drift to 45 m (living shallow subtidal to 17 m). Earlier records from Namibia require confirmation.

Rimula Defrance, 1827. Type species (s.d. Gray 1847): *Rimula blainvillii* Defrance, 1827.

Rimula rhips Herbert & Kilburn, 1986

Rimula rhips Herbert & Kilburn, 1986: 25, figs 84–86. Type loc.: off Port Grosvenor, Transkei (31°25.9'S: 29°57.9'E, co-ordinates erroneous in original description), 120–128 m; holotype in NMSA (C1192/T3018).

Distribution. Northern Zululand (off Boteler Point) to Pondoland (off Port Grosvenor); 40–128 m (no data for living specimens).

Rimulanax Iredale, 1924. Type species (o.d.): *Puncturella corolla* Verco, 1908.

***Rimulanax aethiopica* (Martens, 1902)**

Puncturella (Cranopsis) aethiopica Martens, 1902: 242. Martens, 1904: 128, pl. 5, fig. 9. Thiele, 1904: 160, pl. 7[2], figs 35, 36. Thiele, 1919 in 1912–1919: 146, pl. 16, figs 17–19. Thiele, 1925: 4[39]. Type loc.: Zanzibar-Kanal, in 463 m [*Valdivia* St'n 245 (5°27'S: 39°18'E)]; holotype in ZMB.
Puncturella (Rimulanax) aethiopica—Herbert & Kilburn, 1986: 20, figs 75–83.
Puncturella aethiopica—Herbert, 1991a: 127 (diet), figs 1, 2.

Distribution. Western Indian Ocean, south to E. Cape (off Kei River); 240–550 m (living 350–550 m).

Scutus Montfort, 1810. Type species (o.d.): *Scutus antipodes* Montfort, 1810.

***Scutus unguis* (Linnaeus, 1758)**

Patella unguis Linnaeus, 1758: 783, no. 671. Type loc.: ‘in Amboina’ [Amboina Is., Maluku, Indonesia]; Linnean specimens in LSL and UUZM (Hanley 1855; Wallin 2001).

Parmophorus imbricatus Quoy & Gaimard, 1834: 323, pl. 69, figs 17, 18. Krauss, 1848: 62. Type loc.: ‘le havre de Carteret, Nouvelle Irlande’ [Carteret harbour, New Ireland]; type material probably in MNHN.

Parmophorus corrugatus Reeve, 1842a: 50. Reeve, 1842b: 21, pl. 139, sp. 1. Type loc.: ‘ad insulam Madagascar’ [the island of Madagascar]; location of type material unknown (could not be found in NHM, Salvador pers. comm. iv/2015).

Scutus unguis—E.A. Smith, 1879: 261. Thiele, 1916 in 1912–1919: 111, pl. 13, fig. 7, pl. 14, fig. 3. Paes da Franca, 1960b: 53, pl. 1, fig. 1. Rowell, 1964: 222 (validation of name). Kilburn, 1978: 450 (further references). Richards, 1981: 34, pl. 7, fig. 46. Kilburn & Rippey, 1982: 36, pl. 6, fig. 15. Drivas & Jay, 1985: 4, fig. 7. Christiaens, 1986: 21. Herbert, 1987: 4, figs 13–17. Drivas & Jay, 1988: 32, pl. 1, fig. 6. Steyn & Lussi, 1998: 12, fig. 26. Jarrett, 2000: 3, fig. 6.

Scutum imbricatum—G.B. Sowerby (III), 1892: 49.

Scutum unguis—E.A. Smith, 1903a: 391. Barnard, 1963a: 301. Kennelly, 1964: 53, pl. 3, fig. 20. Day, 1969: 153. Kensley, 1973: 32, fig. 50.

Scutus corrugatus—Christiaens, 1986: 21 (treated as distinct from *S. unguis*).

Distribution. Indo-West Pacific south to E. Cape (East London area); living intertidal and shallow subtidal to 25 m.

Notes. Christiaens (1986) maintained SA material was *Scutus corrugatus* and that this was a distinct species.

Tugali Gray, 1843. Type species (m.): *Tugali elegans* Gray, 1843.

***Tugali barnardi* (Tomlin, 1932)**

Emarginula (Tugalia) carinata (non A. Adams, 1852)—Thiele, 1925: 5[39].

Parmaphorella barnardi Tomlin, 1932: 164, fig. 5. Type loc.: Cape Point, N 50° E, 18 miles [=50°SW of Cape Point], 180 fathoms [344 m]; holotype in SAMC (A3623).

Tugalia [sic] barnardi—Barnard, 1963a: 300, figs 21d, 22a–c. Kensley, 1973: 32, fig. 52 [not 51].

Tugali barnardi—Kilburn, 1978: 452, pl. 11 a–d. Herbert, 1987: 6, figs 18–28. Steyn & Lussi, 1998: 12, fig. 24.

Distribution. Pondoland (off Port Grosvenor) to Atlantic coast of Cape Peninsula (Kommetjie); beach-drift to 550 m; living mostly 90–220 m, but much shallower and even low intertidal on Atlantic Cape coast.

Vacerrena Iredale, 1958. Type species (o.d.): *Vacerra demissa* Hedley, 1904 [=*Puncturella kesteveni* Hedley, 1900].

***Vacerrena nana* (H. Adams, 1872)**

Cemoria nana H. Adams, 1872: 10, pl. 3, fig. 6. Type loc.: Red Sea [Gulf of Suez, R. MacAndrew Coll'n]; holotype in UMZC (I.100235), images available at [http://131.111.101.189/fmi/iwp/cgi?-db=UMZC%20Catalogues%20\(Web\)&-loadframes](http://131.111.101.189/fmi/iwp/cgi?-db=UMZC%20Catalogues%20(Web)&-loadframes)

Puncturella nana—Thiele, 1919 in 1912–1919: 166, pl. 19, fig. 19.

Puncturella (Vacerrena) christiaensi Kilburn, 1978: 448, pl. 9c–e, 10. Herbert & Kilburn, 1986: 23. Type loc.: off Sordwana [Sodwana] Bay, Zululand, 50 m; holotype in NMSA (B230/T2204).

Fissurisepta joschristiaensi Drivas & Jay, 1985: 6, three un-numbered text figures. Mienis, 1987a: 3. Type loc.: Réunion, dead in muddy black sand at 45 m; holotype in MNHN.

Puncturella christiaensi—Menis 1987b: 705.

Puncturella (Vacerrena) nana—Menis, 1992: 79 [=*P. christiaensi*]. Singer, 1998: 11.

Fissurisepta nana—Jay, 2014.

Distribution. Red Sea and western Indian Ocean, extending south to central Zululand (off Cape St Lucia); local material 45–100 m (no data for living specimens).

***Zeidora* A. Adams, 1860.** Type species (m.): *Zeidora calceolina* A. Adams, 1860.

***Zeidora calceolina* A. Adams, 1860**

Zeidora calceolina A. Adams, 1860: 301. Kilburn, 1978: 447 (in part, includes *Z. reticulata* A. Adams, 1862), pl. 8c. Herbert, 1987: 9, figs 30–34. Type loc.: Straits of Korea, 16 miles from Mino-Sima [Mishima, Japan]; 63 fathoms [115 m]; location of type material unknown (could not be found in NHM, Salvador pers. comm. iii/2015).

Zeidora reticulata (non A. Adams, 1862)—Barnard, 1963a: 299, fig. 24c. Kensley, 1973: 32, fig. 52.

Distribution. Indo-West Pacific, extending south to southern Transkei (off Sandy Point); 40–250 m (living 115–150 m).

***Zeidora nesa* (Pilsbry, 1890)**

Nesta candida H. Adams, 1870: 5, pl. 1, figs 1, 1a. Thiele, 1913 in 1912–1919: 45, pl. 5, figs 16–18. Moazzo, 1939: 215, fig. 26. Type loc.: Red Sea [Gulf of Suez, R. MacAndrew Coll'n]; holotype in UMZC (I.100060), images available at [http://131.111.101.189/fmi/iwp/cgi?db=UMZC%20Catalogues%20\(Web\)&loadframes](http://131.111.101.189/fmi/iwp/cgi?db=UMZC%20Catalogues%20(Web)&loadframes)

Emarginula (Nesta) nesa Pilsbry, 1890: 269, pl. 28, fig. 10 [replacement name for *Emarginula (Nesta) candida* (non A. Adams, 1851) (H. Adams, 1870)].

Nesta nesa—Drivas & Jay, 1985: 3, fig. 4. Jay, 2014.

Zeidora (Nesta) nesa—Herbert, 1987: 11. Singer, 1998: 10. Zuschin *et al.*, 2009: 93, pl. 5, fig. 5.

Distribution. Red Sea and western Indian Ocean, extending south to central Zululand (off Leven Point); shallow subtidal to 250 m (no data for living specimens).

***Zeidora reticulata* A. Adams, 1862**

Zeidora reticulata A. Adams, 1862: 298. Herbert, 1987: 9, figs 35–38. Type loc.: off Mino-Sima [Mishima, Japan'], 63 fathoms [115 m]; holotype in NHM (NHMUK 1878.1.28.150).

Zeidora calceolina—Kilburn, 1978: 447 (in part).

Not *Zeidora reticulata*—Barnard, 1963a: 299, fig. 24c. Kensley, 1973: 32, fig. 52 [=*Zeidora calceolina* A. Adams, 1860]

Distribution. Indo-West Pacific, extending south to E. Cape (off Cape Morgan); 60–400 m (no data for living specimens).

SUBFAMILY: FISSURELLINAE J. Fleming, 1822

***Amblychilepas* Pilsbry, 1890.** Type species (o.d.): *Fissurella trapezina* G.B. Sowerby (I), 1835 [=*F. javanicensis* Lamarck, 1822].

***Amblychilepas platyactis* McLean & Kilburn, 1986**

Amblychilepas platyactis McLean & Kilburn, 1986: 9, figs 3, 24, 25. Steyn & Lussi, 1998: 12, fig. 22. Marais, 2011: 25. Type loc.: Port Alfred, E. Cape; holotype in NMSA (B6397/T2744).

Distribution. E. Cape (East London area) to Atlantic Cape coast (Paternoster); living LST to 20 m.

Dendrofissurella McLean & Kilburn, 1986. Type species (o.d.): *Patella scutellum* Gmelin, 1791.

***Dendrofissurella scutellum scutellum* (Gmelin, 1791)**

Patella scutellum Gmelin, 1791: 3731, no. 205. Type loc.: unknown, designated Table Bay by Kilburn & Rippey (1982: 211); no type specimen available—iconotype Meuschen (1782: pl. 2, fig. 3).

Fissurella scutellum—Krauss, 1848: 63.

Fissurellidea sella G.B. Sowerby (II), 1862: 203, pl. 8, fig. 197. Type loc.: S. Africa; holotype said to be in NHM (McLean & Kilburn 1986: 7), but it could not be located there (Salvador pers. comm. iii/2015).

Fissurella scutella—G.B. Sowerby (III), 1892: 47.

Megatebennus (Amblychilepas) scutellum—E.A. Smith, 1903a: 391.

Megatebennus (Amblychilepas) sella—E.A. Smith, 1903a: 391.

Fissurella (Amblychilepas) scutellum—Martens, 1904: 55. Moura, 1969: 16.

Fissurellidaea scutella—Turton, 1932: 207, no. 1434.

Fissurellidaea sella—Turton, 1932: 207, no. 1436.

Amblychilepas scutella—Barnard, 1963a: 286, figs 21b, 22d–f. Grindley & Kensley, 1966: 10. Day, 1969: 153. Kensley, 1973: 29, fig. 30. Richards, 1981: 33, pl. 7, fig. 34.

Amblychilepas scutellum scutellum—Kilburn & Rippey, 1982: 35, 21, pl. 6, fig. 1a.

Dendrofissurella scutellum scutellum—McLean & Kilburn, 1986: 6, figs 17, 18 (further references). Marais, 2011: 26.

Dendrofissurella scutellum—Steyn & Lussi, 1998: 8, fig. 6. Branch *et al.*, 2010: 172, fig. 75.1.

Distribution. W. Cape, from False Bay to Saldanha Bay; beach-drift to 45 m (living intertidal and shallow subtidal).

***Dendrofissurella scutellum hiantula* (Lamarck, 1822)**

Fissurella hiantula Lamarck, 1822a: 14, no. 12. G.B. Sowerby (III), 1892: 48. Mermod, 1950: 708, fig. 18. Type loc.: ‘les mers des Indes’ [the seas of the Indies], designated Algoa Bay by McLean & Kilburn (1986: 7); three syntypes in MHNG (Mermod 1950: fig. 18).

Fissurella incarnata Krauss, 1848: 65, pl. 4, fig. 7. Martens, 1874: 127, no. 63. G.B. Sowerby (III), 1892: 47. Type loc.: ‘*In sinu tabulari et falso, in litore natalensi*’ [Table Bay, False Bay and the shore of Natal]: lectotype in SMNS (MT 112), designated by Janus (1961: 3).

Fissurella (Megatebennus) incarnata—Martens, 1904: 55.

Megatebennus incarnatus—Odhner, 1923: 5. Janus, 1961: 3, pl. 1, figs 4–6.

Megatebennus scutellum—Odhner, 1923: 5.

Fissurellidaea incarnata var. *maculata* Turton, 1932: 206, pl. 53, no. 1431. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Fissurellidaea multilineata Turton, 1932: 206, pl. 53, no. 1432. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Fissurellidaea albanyana Turton, 1932: 207, pl. 54, no. 1433. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Fissurellidaea nigrostrigata Turton, 1932: 207, pl. 54, no. 1435. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Amblychilepas scutella—Tietz & Robertson, 1974: 48, pl. 26 (living animal).

Amblychilepas scutellum hiantula—Kilburn & Rippey, 1982: 35, 211, pl. 2, fig. 11, pl. 6, fig. 1b.

Dendrofissurella scutellum hiantula—McLean & Kilburn, 1986: 7 (additional synonyms and references). Steyn & Lussi, 1998: 8, fig. 7. Marais, 2011: 26.

Distribution. Northern Zululand (Mabibi) to False Bay; beach-drift to 90 m (living intertidal and shallow subtidal).

Fissurella Bruguière, 1789. Type species (s.d. Lamarck 1799): *Patella nimbosa* Linnaeus, 1758.

***Fissurella mutabilis* G.B. Sowerby (I), 1835**

Fissurella mutabilis G.B. Sowerby (I), 1835a: 127. G.B. Sowerby (I), 1835b: 6, figs 67, 70. Krauss, 1848: 65. Martens, 1874: 127, no. 65. Vélin, 1877: 121. Watson, 1886: 33. G.B. Sowerby (III), 1889a: 12. G.B. Sowerby (III), 1892: 47. G.B. Sowerby (III), 1894: 373. Martens, 1904: 50, 55. Bartsch, 1915: 176. Odhner, 1919: 32. Barnard, 1963a: 285, fig. 21a. Kennelly, 1964: 52, pl. 3, fig. 8. Day, 1969: 153. Kensley, 1973: 30, fig. 44. Richards, 1981: 33, pl. 7, fig. 43. Kilburn &

Rippey, 1982: 36, pl. 6, fig. 11. Steyn & Lussi, 1998: 12, fig. 18. Branch *et al.*, 2010: 172, fig. 75.3. Marais, 2011: 27. Type loc.: ‘ad Caput Bonae Spei’ [Cape of Good Hope]; location of type material unknown (could not be found in NHM, Salvador pers. comm. iii/2015).

Fissurella sagittata Reeve, 1849 in 1849–50: pl. 6, sp. 34. Turton, 1932: 205. Type loc.: Cape of Good Hope; two syntypes in NHM (NHMUK 197559), Salvador pers. comm. (iii/2015).

Fissurella rota Reeve, 1850 in 1849–50: pl. 12, figs 79, 81. G.B. Sowerby (III), 1892: 48. Turton, 1932: 205. Kennelly, 1964: 52, pl. 3, fig. 10. Type loc.: Cape of Good Hope; four syntypes in NHM (NHMUK 20150076), Salvador pers. comm. (iv/2015).

Fissurella neglecta (non Deshayes, 1830)—G.B. Sowerby (III), 1889a: 12. G.B. Sowerby (III), 1892: 48.

Fissurella mutabilis var. *aurantia* G.B. Sowerby (III), 1921: 127. Type loc.: Port Alfred, E. Cape; type material in OXUM (*fide* Turton 1932: xiv).

Fissurella (Cremides) mutabilis—Dautzenberg, 1929: 544.

Fissurella mutabilis aurantia—Turton, 1932: 205.

Fissurella alboradiata Turton, 1932: 205, pl. 53, no. 1424. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Fissurella navicula Turton, 1932: 206, pl. 53, no. 1428. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Distribution. Madagascar, southern Mozambique, the entire South African coast and Namibia; intertidal and near-shore reefs to 25 m. Also recorded from Îles St-Paul and Amsterdam in the southern Indian Ocean (Vélain 1877).

Notes. This species needs to be examined in detail using molecular techniques to assess whether it might in fact represent a complex of cryptic species.

***Fissurella natalensis* Krauss, 1848**

Fissurella natalensis Krauss, 1848: 66, pl. 4, fig. 8. G.B. Sowerby (III), 1892: 47. Bartsch, 1915: 176. Braga, 1952: 93: pl. 6, fig. 8. Barnard, 1963a: 286. Day, 1969: 153. Kensley, 1973: 30, fig. 45. Richards, 1981: 33, pl. 7, fig. 42. Kilburn & Rippey, 1982: 36, pl. 6, fig. 12. Steyn & Lussi, 1998: 10, fig. 17. Branch *et al.*, 2010: 172, fig. 75.4. Marais, 2011: 27. Type loc.: ‘In litore natalense’ [on the shore of Natal]; lectotype in SMNS (MT 113), designated by Janus (1961: 3).

Fissurella (Cremides) natalensis—Dautzenberg, 1929: 545. Janus, 1961: 3, pl. 1, figs 7–9.

?*Fissurella indistincta* Turton, 1932: 206, pl. 53, no. 1427. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Diodora natalensis—Kennelly, 1964: 52, pl. 3, fig. 9. Macnae & Kalk, 1969: 127.

Distribution. Mozambique and Madagascar, extending through KwaZulu-Natal to E. Cape (Port Alfred); intertidal.

***Macroschisma* Gray, 1835.** Type species (m.): *Fissurella macroschisma* ‘Humphrey’ =*Patella macroschisma* Lightfoot, 1786 (*nomen dubium*) [for further discussion see Christiaens 1987 and Herbert 1988].

Notes. The gender of the Greek word *schisma* is neuter (Nicolson 1994) and adjectival specific epithets must agree in gender.

***Macroschisma africanum* (Tomlin, 1932)**

Macrochisma producta (non A. Adams, 1851)—G.B. Sowerby (III), 1889a: 12. G.B. Sowerby (III), 1892: 48. E.A. Smith, 1901: 105.

Macrochisma compressa (non A. Adams, 1851)—G.B. Sowerby (III), 1894: 373. G.B. Sowerby (III), 1897: 19.

Machrochisma [sic] *africana* Tomlin, 1932: 161, fig. 3. Type loc.: Port Alfred, E. Cape; holotype in NMW (1955.158.74).

Macrochisma africana—Kensley, 1973: 32, fig. 47.

Macroschisma africana—Kilburn & Rippey, 1982: 36, pl. 6, fig. 14. Christiaens, 1987: 39. Drivas & Jay, 1988: 32, pl. 1, fig. 5. Herbert, 1988a: 495, figs 8–13 (external anatomy), figs 14–17 (radula). Steyn & Lussi, 1998: 12, fig. 25.

Distribution. South-western Indian Ocean; from northern Mozambique, Madagascar and Réunion, south to E. Cape (East London and exceptionally Port Alfred); beach-drift to 280 m (living LST to 50 m).

Medusafissurella McLean & Kilburn, 1986. Type species (o.d.): *Fissurella salebrosa* Reeve, 1850.

Medusafissurella dubia (Reeve, 1849)

Fissurella dubia Reeve, 1849 in 1849–50: pl. 6, sp. 35. Paes da Franca, 1960b: 54. Type loc.: Port Natal [Durban]; holotype in NHM (NHMUK 198495), figured by McLean & Kilburn (1986: fig. 9).

Fissurella dubia—G.B. Sowerby (III), 1892: 48.

Fissurellidea genevieveae Dautzenberg, 1929: 546, pl. 1, figs 3–7. Type loc.: Madagascar, several localities listed; location of type material unknown (not in Dautzenberg collection at RBINS).

Amblychilepas dubia—Kilburn & Rippey, 1982: 35, pl. 6, fig. 2.

Medusafissurella dubia—McLean & Kilburn, 1986: 3, figs 1, 8–10, 15 (further references). Bosch *et al.*, 1995: 31, fig. 19. Steyn & Lussi, 1998: 12, fig. 20.

Distribution. Western Indian Ocean, from Oman (Bosch *et al.* 1995) south to KwaZulu-Natal (Port Edward); living shallow subtidal and near-shore reefs.

SUBFAMILY: HEMITOMINAE Kuroda, Habe & Oyama, 1971

Octomarginula McLean, 2011. Type species (o.d.): *Emarginula ostheimerae* Abbott, 1958.

Octomarginula scutellata (Deshayes, 1863)

Emarginula scutellata Deshayes, 1863: 45, pl. 7 [34], figs 1, 2. Martens, 1880: 298. Viader, 1937: 57. Drivas & Jay, 1985: 5, fig. 12. Jarrett, 2000: 3, fig. 4. Type loc.: Réunion; lectotype in MNHN (IM-2000-4806), designated by Herbert (1987: 3).

Hemitoma scutellata—Thiele, 1916 in 1912–1919: 120, pl. 15, fig. 2. Herbert, 1987: 1, figs 1–5.

Octomarginula scutellata—McLean, 2011: 415.

Distribution. South-western Indian Ocean; from the Mascarene Islands and Mozambique south to central Zululand (Leven Point); shallow subtidal (not yet found alive in South Africa).

Montfortista Iredale, 1929. Type species (m.): *Emarginula (Siphonella) arconatii* Issel, 1869 [= *Emarginula panhi* Quoy & Gaimard, 1834].

Montfortista panhi (Quoy & Gaimard, 1834)

Patella tricarinata (non Linnaeus, 1767)—Born, 1778: 440.

Emarginula panhi Quoy & Gaimard, 1834: 327, pl. 68, figs 7, 8. Type loc.: ‘Tonga-Tabu, sur la petite île de Panhi ou Pangai-Modou’ [Tonga, south Pacific]; syntypes in MNHN (IM-2000-4791).

Emarginula panhiensis Reeve, 1842b: 23, pl. 140, fig. 1 (unjustified emendation).

Subemarginula tricarinata (of Born, 1778)—Pilsbry, 1891 in 1890–1891: 276, pl. 29, figs 7–9. Moazzo, 1939: 215.

Hemitoma panhiensis—Thiele, 1916 in 1912–1919: 116, pl. 13, figs 12, 13.

Hemitoma (Montfortia) panhi—Yaron, 1981: 275, pl. 1. Herbert, 1987: 3, figs 8, 9 (further references). Singer, 1998: 9.

Hemitoma tricarinata (of Born, 1778)—Drivas & Jay, 1985: 3, fig. 3. Mienis, 1987a: 3.

Hemitoma panhi—Christiaens, 1987: 40, figs 67, 70. Zuschin *et al.*, 2009: 91, pl. 4, figs 4, 5.

Montfortista panhi—McLean, 2011: 419, fig. 27.

Distribution. Indo-West Pacific south to northern Zululand, exceptionally to the KwaZulu-Natal south coast (Port Shepstone); beach-drift to 120 m (living 45 m).

SUPERFAMILY: SEGUENZIOIDEA Verrill, 1884

FAMILY: CALLIOTROPIDAE Hickman & McLean, 1990

Calliotropis Seguenza, 1903. Type species (o.d.): *Trochus ottoi* Philippi, 1844.

***Calliotropis acherontis* B.A. Marshall, 1979—new record**

(Figure 3H)

Calliotrochus acherontis B.A. Marshall, 1979: 529, figs 3L–O, 9A, B. Jansen, 1994: 48, pl. 1, figs e, f. Vilvens, 2006: 66, figs 44–46. Vilvens, 2007: 15, figs 36–41. Type loc.: SE of Chanter Islets, Raoul Island, Kermadec Islands, 512–549 m; holotype in NMNZ (MF 30816).

Distribution. South-western Pacific to Madagascar, the Comoros (MNHN) and south to southern Transkei (Shixini Point); 500 m to over 1000 m (local material 500 m, none alive).

***Calliotropis bucina* Vilvens, 2006—new record**

(Figure 4A–C)

Calliotrochus bucina Vilvens, 2006: 62, figs 30–35. Vilvens, 2007: 58, figs 106, 107. Type loc.: Réunion, Marion-Dufresne 32, St'n DC128 (20°51'S: 55°36'E), 280–340 m; holotype in MNHN (Moll. 5810).

Distribution. Indo-West Pacific, from the Solomon Islands and Indonesia, to Réunion, Mayotte and the KwaZulu-Natal north coast (off Tongaat Bluff); local material 160–260 m (living 235 m).

***Calliotropis eucheloides* B.A. Marshall, 1979**

(Figure 4D–F)

Calliotrochus eucheloides B.A. Marshall, 1979: 527, fig. 3A–C. Poppe *et al.*, 2006: 63. Vilvens, 2006: 62, figs 24–27. Vilvens, 2007: 46, figs 138–155, 160, 161. Type loc.: E of Chanter Islets, Raoul Island, Kermadec Islands, 366–402 m; holotype in NMNZ (MF 30813).

Distribution. South-western Pacific to Madagascar and south to southern Transkei (Stony Point); local material 120–450 m (living 295–420 m).

Notes. The occurrence of this species off South Africa was first mentioned by Vilvens (2006: 62). The present material is certainly conspecific with that from Madagascar (Vilvens 2006), but the whorls are less convex than in the type material from Kermadec Islands. Vilvens (2007) believed that the species is a highly variable one in terms of conchological characters and that it is widespread in the south and west Pacific, and the western Indian Ocean.

***Calliotropis granolirata* (G.B. Sowerby (III), 1903)**

Calliostoma (Lischkeia) granoliratum G.B. Sowerby (III), 1903: 222, pl. 5, fig. 7. Thiele, 1925: 14[48]. Type loc.: Cape Point, False Bay, bearing NW by W ½ W; distant 7 ¾ miles; depth 45 fathoms [82 m] (probably inaccurate or erroneous, *fide* Barnard 1963a); syntypes in SAMC (A5296, figured) and NHM (NHMUK 1903.7.27.65, figured by Vilvens 2007: figs 100, 101).

Solariella infundibulum (non Watson, 1879)—Martens, 1904: 48, pl. 4, fig. 22. E.A. Smith, 1906: 56.

Calliostoma granoliratum—E.A. Smith, 1906: 54.

Calliotropis granolirata—Barnard, 1963a: 260, fig. 14h. Kensley, 1973: 36, fig. 65. B.A. Marshall, 1979: 526. Vilvens, 2007: fig. 100, 101.

Distribution. Off Cape Agulhas and Cape Point; 82(?)–2750 m (Thiele 1925); no data for living specimens.

Notes. The type locality given for this species is confusing. Barnard (1963a) interpreted it as two separate localities, off Cape Point and False Bay, bearing NW by W ½ W; distant 7 ¾ miles; depth 45 fathoms, and rejected the latter locality and the depth. However, the given locality is more likely to refer to a single locality just south of the mid-entrance to False Bay and the depth cited is appropriate for this. Nonetheless, more recent dredging work undertaken in this area has not brought to light additional samples. Martens' record from *Valdivia* St'n 122 (135 km S of Cape Point at 2750 m) and a sample in the SAMC (A53301) from 56 km SW of Cape Point at 500 fathoms [914 m], suggest that it may in fact be a bathyal species, though this is confounded by Thiele's record from *Valdivia* St'n 109 (55 km SSE of Cape Agulhas at 126 m).



FIGURE 4. **A–C**, *Calliotropis bucina* Vilvens, 2006, off Tongaat Bluff, KwaZulu-Natal, 235 m, diameter 5.3 mm (NMSA S66). **D–F**, *Calliotropis eucheloides* B.A. Marshall, 1979, off Mbashe River, E. Cape, 295–300 m, diameter 10.1 mm (NMSA C9006). **G–J**, *Tibatrochus* cf. *incertus* (Schepman, 1908); **G**, **H**, off Nthlonyanye River, E. Cape, 95 m, length 6.4 mm (NMSA E331); **I**, off Glenton Reef, KwaZulu-Natal, 200–210 m, length 6.9 mm (NMSA S456); **J**, off Beira, Mozambique, 200–220 m, length 6.3 mm (NMSA L2765). **K**, **L**, *Seguenzia orientalis* Thiele, 1925, off Mgazi River, E. Cape, 350 m, length 2.3 mm (NMSA C9563). **M**, *Visayaseguenzia compsa* (Melvill, 1904), off Gipsy Hill, KwaZulu-Natal, 65–70 m, diameter 2.3 mm (NMSA E7465). **N–P**, *Skenea fuscomaculata* (G.B. Sowerby (III), 1892), off Struisbaai, W. Cape, 32 m, diameter 3.0 mm (NMSA V357). [Images not to scale.]

Calliotropis metallica* (Wood-Mason & Alcock, 1891)

Solariella metallica Wood-Mason & Alcock, 1891: 444, fig. 12a, b. Type loc.: *Investigator* St'n 109, Gulf of Manaar, 728 fathoms [1331 m]; one syntype in NHM (NHMUK 1894.12.12.2), Salvador pers. comm. (iii/2015).
Calliotropis metallica—Barnard, 1963a: 261. Kensley, 1973: 36, fig. 66. B.A. Marshall, 1979: 526. Vilvens, 2006: 62, figs 18, 19.

Distribution. Indonesia, Madagascar and East Africa south to W. Cape (off Cape Point); local material 1024–2743 m, living (Barnard 1963a; Vilvens 2006).

***Calliotropis persculpta* (G.B. Sowerby (III), 1903)**

Solariella persculpta G.B. Sowerby (III), 1903: 223, pl. 5, fig. 8. E.A. Smith, 1906: 56. Thiele, 1925: 14[48]. Type loc.: Cape Natal [Durban Bluff] bearing N by E [?W]; distant 24 miles; depth, 440 fathoms [805 m]; figured syntype in SAMC (A5251, figured); another syntype in NHM (NHMUK 1903.7.27.66), Salvador pers. comm. (iii/2015).
Calliotropis persculpta—Barnard, 1963a: 262. Kensley, 1973: 36, fig. 67. B.A. Marshall, 1979: 526.

Distribution. Only known from off central and southern KwaZulu-Natal (off Durban to off Margate); 800–850 m, living.

Calliotropis pompe* Barnard, 1963

Calliotropis pompe Barnard, 1963d: 440, fig. 8b. Kensley, 1973: 36, fig. 68. Type loc.: off Cape Point (33°50'S: 16°30'E), 1480–1660 fathoms [ca 180 km due west of Table Bay, 2707–3036 m]; two syntypes in SAMC (A9795, A9883).

Distribution. Known only from deep water west and southwest of the Cape Peninsula; 2700–3225 m.

#*Tibatrochus* Nomura, 1940. Type species (m.): *Tibatrochus husaensis* Nomura, 1940.

***Tibatrochus cf. incertus* (Schepman, 1908)—new record**

(Figures 4G–J, 10A, B)

Priotrochus(?) incertus Schepman, 1908: 45, pl. 2, fig. 4; Van der Bijl *et al.*, 2010: 60, 124. Type loc.: *Siboga* St'n 59, western entrance Samau-Strait, 390 m; holotype originally in ZMA (3.08.030), now in RMNH.

Tibatrochus incertus—Poppe *et al.*, 2006: 46, pl. 15, figs 1, 2.

Distribution. Central Indo-West Pacific to central Mozambique, KwaZulu-Natal and southern Transkei (off Shixini Point); 95–500 m (living 95–250 m).

Notes. This material closely resembles *Tibatrochus incertus* from S.E. Asia, but in most of the western Indian Ocean material the suture is less strongly indented and the subsutural region is almost smooth, as opposed to distinctly coronate. There are, however, some local specimens in which the axial ribs extend to the adapical suture, rendering the shoulder region strongly undulant or nodular (Fig. 4I). Occasional individuals from Mozambique have weaker sculpture (Fig. 4J) and may also have an additional spiral cord above and/or below the periphery. This variation in sculpture needs to be evaluated in more detail before a decision on the status of the local material can be made. As with *Calliotropis eucheloides* above, it may be that a single sculpturally variable species is involved. The radula of this genus has not previously been illustrated, so I take the opportunity to do so (Fig. 10A, B). As expected in calliotropid taxa, the rachidian is hooded, but unlike species of *Calliotropis*, there are five pairs of lateral teeth (rather than three) and there is no latero-marginal plate, although the base of the shaft of the fifth lateral is somewhat expanded.

FAMILY: CHILODONTIDAE Wenz, 1938

Ascertostoma Herbert, 2012. Type species (o.d.): *Euchelus providentiae* Melvill, 1909.

***Aschetostoma providentiae* (Melvill, 1909)**

Euchelus providentiae Melvill, 1909: 78, pl. 5, fig. 1. Viader, 1937: 56. Type loc.: Providence I. (Seychelles group), north east of Madagascar; holotype and paratype formerly in NHM (NHMUK 1910.3.17.2–3), but holotype no longer present; paratype figured by Herbert (2012: fig. 18G, H).
Aschetostoma providentiae—Herbert, 2012: 420, figs 4F, 5A, 6A, 18–20.

Distribution. Islands of the western Indian Ocean (southern Seychelles group and Mascarenes) and the Mozambique Channel south to central Zululand (off Mission Rocks); 35–195 m (living 50–85 m).

***Clypeostoma* Herbert, 2012.** Type species (o.d.): *Turcica salpinx* Barnard, 1964.

***Clypeostoma salpinx* (Barnard, 1964)**

Turcica salpinx Barnard, 1964: 19, fig. 3a–d. Kensley, 1973: 44, fig. 112. Type loc.: off Cape Morgan, 77 fathoms [141 m], designated by Herbert (2012: 408); two syntype lots in SAMC A9252/3.
Clypeostoma salpinx—Herbert, 2012: 404, figs 4D, 6B, 10, 11.

Distribution. South-eastern Africa; from southern Mozambique (off Inhambane) to E. Cape (off Great Kei River); 60–400 m (living 60–277 m).

***Danilia* Brusina, 1865.** Type species (m.): *Monodonta limbata* Philippi, 1844 [= *Monodonta tinei* Calcaria, 1839].

***Danilia textilis* Herbert, 2012**

Danilia textilis Herbert, 2012: 415, figs 4E, 6C, 13, 15–17. Type loc.: South Africa, E. Cape, off Rame Head (31.8450°S: 29.4750°E), 150–160 m; holotype in NMSA (E7756/T2595).

Distribution. South-eastern Africa; from central Mozambique (off Beira) to southern Transkei (off Qolora River); 110–500 m (living 150–250 m).

***Granata* Cotton, 1957.** Type species (o.d.): *Stomatella imbricata* Lamarck, 1816 (discussed in detail by Herbert 2012).

***Granata sulcifera* (Lamarck, 1822)**

Stomatella sulcifera Lamarck, 1822a: 210, no. 3. Kilburn & Rippey, 1982: 42, pl. 9, fig. 5. Type loc.: ‘les mers de la Nouvelle-Hollande’ [the seas of Australia]; holotype in MHNG, figured by Mermod & Binder (1963: fig. 206) and Poppe *et al.* (2006: fig. 26).

Granata sulcifera—Steyn & Lussi, 1998: 24, fig. 79. Herbert, 2012: 484, figs 4C, 6D, 65–67 (detailed synonymy and chresomy).

Distribution. Indo-West Pacific to the eastern seaboard of Africa, extending south to southern Transkei (Coffee Bay); living LST and shallow subtidal down to 18 m.

***Herpetopoma* Pilsbry, 1890.** Type species (o.d.): *Euchelus scabriusculus* A. Adams & Angas, 1867.

***Herpetopoma (s.l.) helix* (Barnard, 1964)**

Turcica helix Barnard, 1964: 21, fig. 3e. Kensley, 1973: 44, fig. 110. Type loc.: off Cape Vidal (Zululand), 80–100 fathoms [146–183 m]; holotype in SAMC (A9295).
Herpetopoma (s.l.) helix—Herbert, 2012: 439, figs 4I, 32–34.

Distribution. Southern Madagascar and south-eastern Africa from the Inhambane area to southern Transkei (off Shixini Point); 70–500 m (living 70–180 m).

***Herpetopoma* (s.l.) *?naokoae* Poppe, Tagaro & Dekker, 2006**

Herpetopoma naokoae Poppe, Tagaro & Dekker, 2006: 37, pl. 10, figs 1, 3. Type loc.: Punta Engaño, Mactan Is., Philippines; holotype in NMPM.

Herpetopoma (s.l.) *?naokoae*—Herbert, 2012: 443, figs 35, 36.

Distribution. Described from the Philippines; south-western Indian Ocean material recorded from Réunion and central Zululand (off Neill Peak); 280–375 m (no data for living specimens).

Notes. Specimens from the south-western Indian Ocean have a slightly more acute (less rounded) apex than those from the Philippines and their identification as *H. naokoae* is thus tentative.

Perrinia H. Adams & A. Adams, 1854. Type species (s.d. Pilsbry 1890 in 1889–1890): *Monodonta angulifera* A. Adams, 1853.

***Perrinia angulifera* (A. Adams, 1853)**

Monodonta angulifera A. Adams, 1853: 176. Type loc.: Puerto Galero, Mindoro Is., Philippines, sandy mud, 6 fathoms [11 m]; lectotype in NHM (NHMUK 1968215), designated by Herbert (2012: 468, fig. 52A).

Perrinia angulifera—Herbert, 2012: 465, figs 4M, 5B, 6E, 52–54 (detailed synonymy and chresonymy).

Distribution. Indo-West Pacific; ranging west to the Mascarene Islands and the continental margin of the western Indian Ocean, from Muscat (Melvill 1928) south to northern Zululand (Liefeldt's Rocks); local material 50–80 m (living 50–65 m).

***Perrinia konos* (Barnard, 1964)**

Turcica konos Barnard, 1964: 20, fig. 2f. Kensley, 1973: 44, fig. 111. Type loc.: off Umkomaas, KwaZulu-Natal, 40 fathoms [73 m]; four syntypes in SAMC (A9257).

Perrinia konos—Herbert, 2012: 470, figs 4N, 55–57.

Distribution. South-western Indian Ocean; from northern Madagascar and Mozambique, extending south to E. Cape (off Great Kei River); 47–250 m (living 55–110 m).

***Perrinia stellata* (A. Adams, 1864)**

Turcica stellata A. Adams, 1864: 508. Type loc.: China Seas [Cuming], erroneous, emended to the Gulf of Suez by Herbert (2012); holotype in NHM (NHMUK 1968214), figured by Herbert (2012: fig. 58A).

Turcica (*Perrinia*) *stellata*—Kilburn, 1977: 176.

Perrinia stellata—Herbert, 2012: 474, figs 4O, 58–60 (detailed synonymy and chresonymy).

Distribution. Western Indian Ocean; from the Persian Gulf, Arabian Sea and Red Sea south to the KwaZulu-Natal south coast (off Scottburgh); local material 14–60 m (living 18–50 m).

Vaceuchelus Iredale, 1929. Type species (od.): *Euchelus angulatus* Pease, 1868 [= *Monodonta foveolata* A. Adams, 1853].

***Vaceuchelus cretaceus* Herbert, 2012**

Vaceuchelus cretaceus Herbert, 2012: 447, figs 4J, 6F, 39–41. Type loc.: South Africa, KwaZulu-Natal, off Boteler Point (27.00°S: 32.92°E), 70 m; holotype in NMSA (E1761/T2600).

Distribution. South-western Indian Ocean; from Réunion and southern Mozambique south to central Zululand (Mission Rocks); shallow subtidal to 250 m, but mostly less than 160 m (living 50–70 m).

***Vaceuchelus gemmula* (Turton, 1932)**

Euchelus gemmula Turton, 1932: 194, pl. 49, no. 1347. Type loc.: Port Alfred, E. Cape; lectotype in OXUM, designated by Herbert (2012: 453).

Euchelus natalensis—Bartsch, 1915: 163. Turton, 1932: 193, no. 1346. Barnard, 1963a: 266 (in part).

Vaceuchelus gemmula—Herbert, 2012: 452, figs 42–44.

Distribution. E. Cape, from the border with KwaZulu-Natal to the Port Elizabeth area; living from LST to 115 m.

***Vaceuchelus natalensis* (E.A. Smith, 1906)**

Euchelus natalensis E.A. Smith, 1906: 55, pl. 8, fig. 5. Barnard, 1963a: 266 (in part, includes *V. gemmula* (Turton, 1932)).

Kensley, 1973: 38, fig. 75. Type loc.: Durban; lectotype in NMSA (1208/T522), designated by Herbert (2012: 460).

Vaceuchelus natalensis—Herbert, 2012: 457, figs 4K, 6G, 47–49.

Distribution. Southern Mozambique (Bazaruto Archipelago) to southern Transkei (Mbashe River); living from LST to 84 m.

FAMILY: SEGUENZIIDAE Verrill, 1884

SUBFAMILY: GUTTULINAE Goryachev, 1987

Guttula Schepman, 1908. Type species (m.): *Guttula sibogae* Schepman, 1908.

***Guttula blanda* Barnard, 1963**

Guttula blanda Barnard, 1963a: 265, fig. 17. Kensley, 1973: 40, fig. 84. Type loc.: Cape Point N 89° E, distant 36 miles, 700 fathoms [1280 m]; holotype in SAMC (A7424).

Distribution. Known only from the type locality.

SUBFAMILY: SEGUENZIINAE Verrill, 1884

Fluxinella B.A. Marshall, 1983. Type species (o.d.): *Fluxinella lepida* B.A. Marshall, 1983.

Fluxinella gelida* (Barnard, 1963)

Basilissa gelida Barnard, 1963d: 441, fig. 9. Kensley, 1973: 35, fig. 54. Type loc.: off Cape Point: 33°26'S, 16°33'E, 1240–1300 fathoms [ca 140 km due west of Dassen Island, 2268–2377 m]; holotype in SAMC (A9720).

Fluxinella gellida [sic]—B.A. Marshall, 1991: 70.

Distribution. Known only from the type locality.

Halystina B.A. Marshall, 1991. Type species (o.d.): *Halystina caledonica* B.A. Marshall, 1991.

Halystina simplex* (Barnard, 1963)

Seguenzia simplex Barnard, 1963a: 265, fig. 16a. Kensley, 1973: 42, fig. 96. Type loc.: Cape Point N 89° E, distant 36 miles, 700 fathoms [1280 m]; syntypes in SAMC (A7421).

Halystina simplex—B.A. Marshall, 1991: 88.

Distribution. Known only from the type locality.

Seguenzia Jeffreys, 1876. Type species (m.): *Seguenzia formosa* Jeffreys, 1876.

***Seguenzia orientalis* Thiele, 1925—new record**

(Figure 4K, L)

Seguenzia orientalis Thiele, 1925: 13[46], pl. 1[13], fig. 12. Type locality: *Valdivia* St'n 251 (1°40.6'S: 41°47.1'E) [off Kenya/Somalia border], 693 m; holotype in ZMB.

Distribution. Western Indian Ocean, with one local record, from off Mgazi River E. Cape, 350 m.

***Seguenzia sykesi* Schepman, 1909**

Seguenzia sykesi Schepman, 1909: 180, pl. 12, fig. 6. Barnard, 1963a: 264, fig. 16b. Kensley, 1973: 42, fig. 97. Type loc.: *Siboga* St'n 241 (4°24.3'S: 129°49.3'E), 1570 m [Banda Besar, Maluku, Indonesia]. holotype in ZMA, now in RMNH.

Distribution. Indonesia, with one vaguely localised record without depth from off KwaZulu-Natal (Barnard 1963a).

#*Visayaseguenzia* Poppe, Tagaro & Dekker, 2006. Type species (o.d.): *Visayaseguenzia maestratii* Poppe, Tagaro & Dekker, 2006.

***Visayaseguenzia compsa* (Melvill, 1904)—new record—new combination**

(Figures 3I, J, 4M)

Basilissa (Ancistrobasis) compsa Melvill, 1904: 160, pl. 10, fig. 4. Type loc.: Gulf of Oman, 24°58'N: 56°54'E, 156 fathoms [285 m]; holotype in NHM (NHMUK 1905.7.14.14).

Distribution. Western Indian Ocean, extending south to central Zululand (off Cape St Lucia); local material 47–250 m, but mostly <100 m (living 50–100).

SEGUENZIOIDEA unassigned

Brookula Iredale, 1912. Type species (o.d.): *Brookula stibarochila* Iredale, 1912.

***Brookula gemmula* (Turton, 1932)**

Scalaria gemmula Turton, 1932: 84, pl. 19, no. 601. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Scala gemmula—Barnard, 1963c: 102. Kensley, 1973: 62, fig. 181.

Brookula gemmula—Kilburn, 1977: 180.

Distribution. Northern Zululand (off Sodwana Bay) to W. Cape (Still Bay); beach-drift to 210 m (no data for living specimens).

SUPERFAMILY: TROCHOIDEA Rafinesque, 1815

Barnard (1963a) described *Rufanula sextula* gen. et sp. nov. from Algoa Bay and referred it to the Liotiidae. No living material of this species has been obtained and its affinities remain enigmatic. It is superficially similar to *Bichoristes* McLean, 1992 [Lepetellidae: Choristellinae] and to species of *Pseudomalaxis* P. Fischer, 1885 [Architectonicidae], as well as to the fossil genus *Neamphitomaria* Bandel, 1988 [?Omalogyridae/Architectonicoidae] (Warén pers. comm. viii/2015).

FAMILY: CALLIOSTOMATIDAE Thiele, 1924

SUBFAMILY: CALLIOSTOMATINAE Thiele, 1924

Calliostoma Swainson, 1840. Type species (s.d. Herrmannsen 1846): *Trochus conulus* Linnaeus, 1758 [see Marshall (1995a) for further discussion].

Circumscription of subgenera within *Calliostoma* remains an imprecise exercise lacking a phylogenetic context. Consequently I have refrained from assigning the South African species to subgenera.

Calliostoma africanum Bartsch, 1915

Calliostoma africana Bartsch, 1915: 162, pl. 24, figs 2, 4, 6. Type loc.: Port Alfred, E. Cape; holotype in USNM (249765).

Clanculus exquisita Turton, 1932: 180, pl. 43, no. 1268. Type loc.: Port Alfred, E. Cape; holotype in OXUM. **Syn. nov.**

Calliostoma convexa Turton, 1932: 193, pl. 49, no. 1345. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Calliostoma africanum—Barnard, 1963a: 255. Kensley, 1973: 35, fig. 56. Richards, 1981: 34, pl. 8, fig. 51. Springsteen, 1981: 5, fig. 10. Kilburn & Rippey, 1982: 39, pl. 8, fig. 1. Steyn & Lussi, 1998: 22, fig. 66. Branch *et al.*, 2010: 174, fig. 76.2. Marais, 2011: 60. Lussi, 2014: 14, un-numbered figure.

Calliostoma (*Calliostoma*) *africanum*—Kilburn, 1974: 189.

Distribution. Pondoland to Jeffreys Bay, perhaps also KwaZulu-Natal; living off shore, mostly from 30–150 m.

Calliostoma aikenii Lussi, 2014

Calliostoma aikenii Lussi, 2014: 15, un-numbered figure. Type loc.: off Port Edward, southern KwaZulu-Natal, 90 m; holotype in NMSA (W9927/T3904).

Distribution. Northern Zululand (Sodwana Bay) to southern KwaZulu-Natal (Port Edward); 60–170 m (living 90–170 m).

Calliostoma circus Barnard, 1969*

Calliostoma circus Barnard, 1969: 653, fig. 27a. Kensley, 1973: 35, fig. 58. Springsteen, 1981: 4, fig. 6. Type loc.: trawled ‘presumably somewhere off Cape Point’; holotype in SAMC (A30032).

Distribution. Known only from the type material.

Notes. Since no further specimens have been found, it seems probable that the specimen was obtained in deep water, well beyond the continental shelf. The specimen illustrated under this name by Steyn & Lussi (2005: 12, no. 12) has fine intermediary spiral sculpture and appears to be a different species, but its identity is unclear. Ultimately, *C. circus* may prove to belong to *Maurea* Oliver, 1926.

Calliostoma crossleyae E.A. Smith, 1910

Calliostoma multiliratum (non G.B. Sowerby (III), 1875)—G.B. Sowerby (III), 1897: 30. E.A. Smith, 1903a: 389. Barnard, 1963a: 256, fig. 15g.

Calliostoma liratum [*laps. cal.*]—G.B. Sowerby (III), 1900: 6.

Calliostoma crossleyae E.A. Smith, 1910: 205, pl. 7, fig. 17. Kilburn, 1972: 395, fig. 2. Springsteen, 1981: 8, fig. 15. Herbert, 1990b: 203. Steyn & Lussi, 1998: 22, fig. 69. Lussi, 2014: 16, un-numbered figure. Type loc.: Port Shepstone (lectotype locality); lectotype in NMSA (2480/T521), designated and figured by Kilburn (1972); paralectotype in NHM (NHMUK 1911.8.30.14).

Calliostoma multilirata (non G.B. Sowerby (III), 1875)—Kilburn, 1972: 395.

Distribution. Northern Zululand (Kosi Bay) to southern Transkei (Xora), beach-drift to 145 m (living 45–140 m).

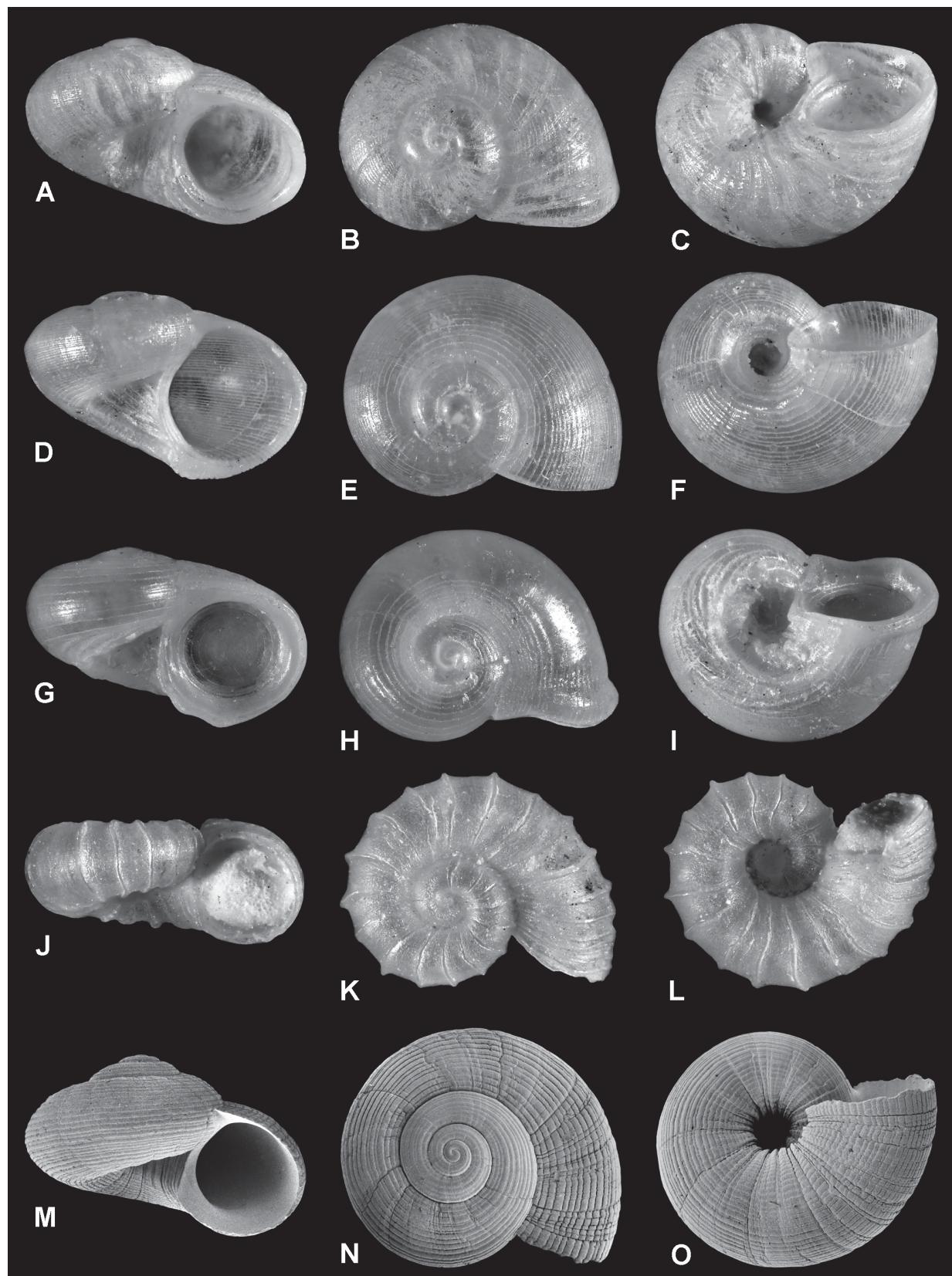


FIGURE 5. Skeneidae. **A–C**, *Cirsonella africana* (Bartsch, 1915), off Cape Recife, E. Cape, 25 m, diameter 1.1 mm (NMSA V102). **D–F**, *Dikoleps farica* (Bartsch, 1915), off Cape Morgan Lighthouse, E. Cape, 100 m, diameter 1.26 mm (NMSA B7123). **G–I**, *Lodderena arifca* (Bartsch, 1915), Dalebrook, False Bay, W. Cape, diameter 1.16 mm (NMSA D5429). **J–L**, *Pondorbis alfredensis* Bartsch, 1915, Port Elizabeth, E. Cape, diameter 0.78 mm (B7625). **M–O**, *Skenea fuscomaculata* (G.B. Sowerby (III), 1892), off Struisbaai, W. Cape, 32 m, diameter 3.7 mm (NMSA V357). [Images not to scale.]

***Calliostoma iridescentes* G.B. Sowerby (III), 1903**

Calliostoma (Astele) iridescentes G.B. Sowerby (III), 1903: 223, pl. 5, fig. 4. E.A. Smith, 1906: 54. Type loc.: Cape Natal [Durban Bluff] bearing N ½ W; distant 4½ miles; depth, 55 fathoms [101 m]; holotype in SAMC (A5294).
Calliostoma iridescentes—Barnard, 1963a: 259, fig. 15d. Kensley, 1973: 36, fig. 61. Springsteen, 1981: 5, fig. 14. Steyn & Lussi, 2005: 13, no. 13. Lussi, 2014: 16, un-numbered figure.

Distribution. Northern Zululand (off Dog Point) to KwaZulu-Natal south coast (off Park Rynie); 48–180 m (living 100 m).

***Calliostoma layardi* G.B. Sowerby (III), 1897**

Calliostoma Layardi [sic] G.B. Sowerby (III), 1897: 18, pl. 8, figs 10, 11. Type loc.: Pondoland; holotype in NHM (NHMUK 1899.4.14.3670), Salvador pers. comm. (iii/2015).
Calliostoma layardi—Barnard, 1963a: 257, fig. 15c. Kensley, 1973: 36, fig. 62. Richards, 1981: 35, pl. 8, fig. 54. Springsteen, 1981: 5, fig. 11. Kilburn & Rippey, 1982: 39, pl. 8, fig. 3. Steyn & Lussi, 1998: 22, fig. 68. Lussi, 2014: 17, un-numbered figure.

Distribution. Southern Mozambique to south-western Transkei (Kei River), occasionally to East London; beach-drift to 280 m (living from LST to 85 m).

***Calliostoma ornatum* (Lamarck, 1822)**

Trochus ornatus Lamarck, 1822b: 27. Krauss, 1848: 98. P. Fischer, 1875 in 1875–1880: 75, pl. 17, fig. 1. Type loc.: not originally given; holotype in MHNG (1096/4), figured by Kilburn (1974: fig. 1a).

Trochus bicinctulus (non Lamarck, 1822)—Krauss, 1852: 33.

Calliostoma euglyptus (non A. Adams, 1855)—G.B. Sowerby (III), 1892: 42.

Calliostoma ornatum—G.B. Sowerby (III), 1892: 42. Thiele, 1925: 20[54]. Richards, 1981: 34, pl. 8, fig. 53. Springsteen, 1981: 4, fig. 7. Kilburn & Rippey, 1982: 39, pl. 8, fig. 4. Steyn & Lussi, 1998: 22, fig. 67. Branch *et al.*, 2010: 174, fig. 76.1. Marais, 2011: 60. Lussi, 2014: 17, un-numbered figure.

Trochus (*Calliostoma*) *ornatus*—Martens, 1904: 47.

Calliostoma eucosmia Bartsch, 1915: 161, pl. 25, figs 1–3. Turton, 1932: 193. Barnard, 1963: 254, figs 14e, 15f. Kennelly, 1964: 54, pl. 4, fig. 27. Day, 1969: 159. Kensley, 1973: 36, fig. 59. Type loc.: Albany and Peddie [E. Cape]; holotype in USNM (97988).

Calliostoma bicinctulus (non Lamarck, 1822)—Turton, 1932: 192, pl. 49, no. 1339.

Calliostoma ornata—Turton, 1932: 193, pl. 49, no. 1340.

Calliostoma ornata var. *similis* Turton, 1932: 193, pl. 49, no. 1341. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Calliostoma albolineata Turton, 1932: 193, pl. 49, no. 1342. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Calliostoma (*Calliostoma*) *ornatum*—Kilburn, 1974: 187, fig. 1a.

Distribution. Pondoland (Mtentu) to west coast of Cape Peninsula (Sandy Bay); living LST to 75 m.

***Calliostoma perfragile* G.B. Sowerby (III), 1903**

Calliostoma perfragile G.B. Sowerby (III), 1903: 222, pl. 5, fig. 3. E.A. Smith, 1906: 54. Barnard, 1963a: 258, figs 14g (radula), 15e. Kensley, 1973: 36, fig. 63. Springsteen, 1981: 4, fig. 8. Lussi, 2014: 17, un-numbered figure. Type loc.: Vasco de Gama Pk. bearing S 75° E; distant 13½ miles; depth, 166 fathoms [304 m]; ‘figured type’ in SAMC (A5275) (holotype according to Giles & Gosliner (1983), another syntype in NHM (NHMUK 1903.7.27.64), Salvador pers. comm. (iii/2015)).

Calliostoma capense Thiele, 1925: 20[54], pl. 13, fig. 33. Type loc.: Valdivia St'n 113, SW of Cape Point (34°33.3'S: 18°21.2'E), 318 m; holotype in ZMB.

Distribution. Agulhas Bank, southern Transkei to Cape Point, perhaps also KwaZulu-Natal; 100–350 m (living 100–300 m).

Notes. The use of the term ‘holotype’ for the SAMC syntype by Giles & Gosliner (1983) does not fit the criteria for designation of lectotype either by selection or inadvertent designation (ICZN, Art. 74.5), nor by

inference of holotype (ICZN, Art. 74.6) because the original description clearly stated that there were two specimens.

***Calliostoma scotti* Kilburn, 1973**

Calliostoma (Kombologion) scotti Kilburn, 1973: 558, figs 1a–c, 2a, b. Type loc.: 25 miles [40 km] south-east of Durban, 230 fathoms [not 23 fathoms as originally given] [420 m]; holotype in NMSA (9997/T1689).

Calliostoma scotti—Springsteen, 1981: 5, fig. 13. Nolf & Verstraeten, 2003: 12, 13. Vilvens *et al.*, 2004: 49, figs 7, 8. Steyn & Lussi, 2005: 13, no. 14. Lussi, 2014: 18, un-numbered figure.

Distribution. Southern Mozambique to southern Transkei (off Mbashe River); 200–512 m (living 200–410 m).

***Dactylastele* B.A. Marshall, 1995.** Type species (o.d.): *Trochus (Zizyphinus) poupineli* Montrouzier, 1875.

***Dactylastele burnupi* (E.A. Smith, 1899)**

Calliostoma burnupi E.A. Smith, 1899b: 250, pl. 5, fig. 11. Barnard, 1963a: 256. Kensley, 1973: 35, fig. 57. Richards, 1981: 34, pl. 8, fig. 49. Springsteen, 1981: 5, fig. 9. Kilburn & Rippey, 1982: 39, pl. 8, fig. 2. Steyn & Lussi, 1998: 22, fig. 65. Type loc.: Durban; one syntype in NHM (NHMUK 1899.9.9.42), Salvador pers. comm. (iii/2015, vii/2015).

Calliostoma (Calliostoma) burnupi—Kilburn, 1974: 189, fig. 2.

Dactylastele burnupi—B.A. Marshall, 1995a: 424. Lussi, 2014: 18, un-numbered figure.

Distribution. South-western Indian Ocean, from Réunion and Mozambique to central Transkei (Whale Rock); living LST to 50 m.

Notes. *Dactylastele nevilli* (G.B. Sowerby (III), 1905) perhaps from Sri Lanka is very similar and needs to be investigated further as a potential junior synonym.

#*Falsimargarita* Powell, 1951. Type species (o.d.): *Margarites gemma* E.A. Smith, 1915.

***Falsimargarita glaucophaos* (Barnard, 1963)*—new combination**

(Figure 6A–D)

Calliostoma glaucophaos Barnard, 1963d: 442, fig. 8c. Kensley, 1973: 36, fig. 60. Springsteen, 1981: 5, fig. 12. Type loc.: 33°52'S: 16°51'E, 1380–1520 fathoms [ca 150 km due west of Table Bay, 2524–2780 m]; two syntypes in SAMC (A9830).

Minolia glaucophaos—Lussi, 2014: 14.

Distribution. Known only from the type material.

Notes. Barnard (1963d) referred this species to *Calliostoma* largely on the basis of its radula morphology, but he was clearly aware that it was not a typical member of that genus. The uniformly white shell with pink/green iridescence and strong spiral sculpture is much more typical of the genus *Falsimargarita*. Species of this genus are frequently described as having a large, smooth, rounded or inflated protoconch (Dell 1990; Warén & Bouchet 2001; Rios & Simone 2005; Simone 2008). Examination of the type material of *C. glaucophaos* indicates that it too has a large bulbous protoconch [diameter 0.9 mm (Barnard cited 1.0 mm), Fig. 4D], which is effectively smooth under a dissecting microscope. There is no trace of the hexagonal sculpture so typical of *Calliostoma* and calliostomatids in general (Marshall 1995a). I have no hesitation in referring this species to *Falsimargarita* and note that it is extremely similar to *F. stephaniae* Rios & Simone, 2005 from 1200 m off the Falkland Islands. Indeed, allowing for some individual and geographic variation in shell size and the strength of the spiral sculpture, it is quite possible that the two are conspecific. The illustrations provided by Barnard (1963d) and Kensley (1973) suggest that *F. glaucophaos* is proportionately deeper [H:D close to 1.0] than *F. stephaniae*, but the dimensions of the syntypes (which match those provided by Barnard) give an H:D ratio of 0.88, which is the same as that calculated from the dimensions cited for *F. stephaniae*. Warén & Bouchet (2001) stated that the protoconch of *Falsimargarita* was finely tuberculate, but did not provide a figure. They noted also that this was at variance with the honey-comb sculpture of other calliostomatids.

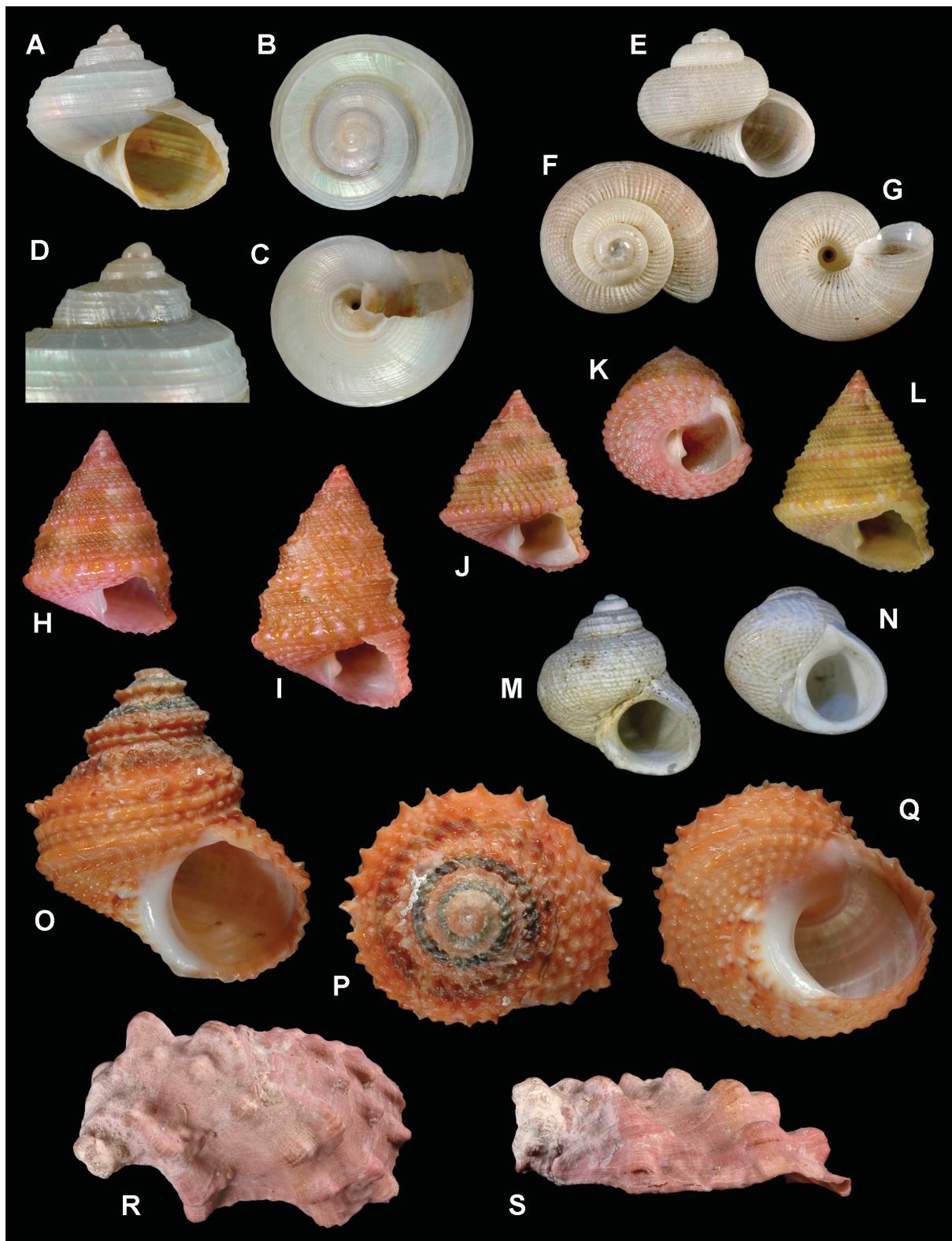


FIGURE 6. A–D, *Falsimargarita glaucophaos* (Barnard, 1963), syntype, diameter 12.5 mm (SAM A9830). E–G, *Spectamen martensi* sp. n., holotype, off Waterfall Bluff, E. Cape, 300 m, diameter 4.5 mm (NMSA C9714/T4032). H–L, *Jujubinus hubrechti* Poppe, Tagaro & Dekker, 2006, H, I, off Ponta Techobanine, southern Mozambique, 90–100 m, length 6.0 mm and 7.2 mm respectively (NMSA L8392), J–L, off Gipsy Hill, KwaZulu-Natal, 110 m, length 5.3 mm and 6.0 mm respectively (NMSA E3716). M, N, *Crosseola foveolata* (Barnard, 1963), M, SSE of Tsitsikamma, E. Cape, 275–285 m, length 2.8 mm (NMSA V3610), N, oblique view of base, SSE of Knysna, W. Cape, 101 m, diameter 2.33 mm (NMSA V1793). O–Q, *Turbo tursicus* Reeve, 1848, off Rocktail Bay, KwaZulu-Natal, 65 m, length 14.3 mm (NMSA D6362). R, S, *Stomatia phymotis* Helbling, 1779, coral reefs off Kosi Bay, KwaZulu-Natal, 18–22 m, length 20.5 mm (NMSA S1068). [Images not to scale.]

Falsimargarita is primarily found in Antarctic and sub-Antarctic waters. Its occurrence at only *ca* 34°S is thus somewhat surprising, but may be related to the northward flow of cold Antarctic waters off the west coast of southern Africa. Warén & Bouchet (2001) have also recorded the genus from 17°25'S on the East Pacific Rise (2578 m) and from 'deep-water dredgings' off New Caledonia (25°S).

SUBFAMILY: THYSANODONTINAE B.A. Marshall, 1988

Bruceina Özdkmen, 2013. Replacement name for *Herbertina* B.A. Marshall, 1988 [*non* Schaus, 1901 =Lepidoptera]. Type species (o.d.): *Herbertina eos* B.A. Marshall, 1988.

Bruceina chenoderma (Barnard, 1963)—new combination

Calliotropis chenoderma Barnard, 1963a: 263, fig. 16c. Kensley, 1973: 36, fig. 64. B.A. Marshall, 1979: 526. Vilvens, 2004: 31. Type loc.: off Cape St Blaize, 125 fathoms [229 m] (lectotype locality); and off Cape Morgan, 47 fathoms [86 m]; lectotype here designated in SAMC (A9296) and one paralectotype (A9297).

Herbertina hayesi Herbert, 1995: 255, figs 1–6, 7. Type loc.: off Algoa Bay, living, in crayfish trap, 150 m; holotype in NMSA (V888/T1327). **Syn. nov.**

Distribution. Agulhas Bank, from Algoa Bay to Cape St Blaize; 100–210 m (living 100–150 m).

Notes. The type material of this species is composite. The specimen from off Cape St Blaize (SAM A9296), which was the one figured by both Barnard (1963a) and Kensley (1973), even though it is in very poor condition, is without doubt a juvenile of the species that I subsequently described under the name *Herbertina hayesi* (Herbert 1995). The second specimen (SAM A9297) from off Cape Morgan [Kei Mouth], which is in much better condition, is also a juvenile species of the same genus, but as noted by Barnard, it lacks the coarse 'goose-skin' sculpture of the illustrated specimen. It is in fact almost certainly a juvenile specimen of *Bruceina eos*. Since Barnard's name predates both of the other names, one of the junior names must be relegated to synonymy. That Barnard drew attention to the sharp upstanding points on the spiral cords of the second and third whorls of his Cape St Blaize specimen and that this was the one he chose to illustrate, despite it being broken and flaking, indicates that this was the one he considered best typified the characters of his species and from which he derived the specific epithet *chenoderma* [=goose-skin]. I therefore select this specimen as the lectotype (SAM A9296) and place *Herbertina hayesi* in synonymy with *Calliotropis chenoderma*, at the same time transferring the latter to *Bruceina*. Barnard was prone to base new taxa on poor quality material, and the descriptions and figures of the species are often compromised as a result—an unfortunate aspect of his otherwise valuable legacy.

Bruceina cognata (B.A. Marshall, 1988)

Herbertina cognata B.A. Marshall, 1988: 227, figs 5B, C, E, I–K. Type loc.: 32°40.3'S: 28°40.4'E, off Sandy Point, Transkei, South Africa, 94 m; holotype in NMSA (E353/T3833).

Distribution. Central Zululand (off Cape Vidal) to Algoa Bay; 50–340 m (living 80–230 m).

Bruceina eos (B.A. Marshall, 1988)

Herbertina eos B.A. Marshall, 1988: 223, figs 5A, D, F–H, 7A, B. Type loc.: 31°06'S: 30°7.8'E, off Port Edward, KwaZulu-Natal, South Africa, alive, 120–125 m; holotype in NMSA (D7147/T3832).

Distribution. Central Zululand (off Neill Peak) to E. Cape (off East London); 70–500 m (living 85–430 m).

FAMILY: SKENEIDAE Clark, 1851

The family Skeneidae comprises a polyphyletic assemblage of small, mostly white, non-nacreous snails that remain very poorly known. Our current knowledge of South African skeneid vetigastropods is extremely limited.

Some will almost certainly prove not to be vetigastropods. I include a number of potential skeneids species below, but the generic referrals are at best tentative. The taxonomy of this group has not been helped by Bartsch's penchant for creating species names from anagrams of Africa, e.g. *arifca*, *cifara*, *facira*, *farica*, *ficara* and *rifaca*.

Cirsonella Angas, 1877. Type species (m.): *Cirsonella australis* Angas, 1877.

***Cirsonella africana* (Bartsch, 1915)—new combination**

(Figure 5A–C)

Leptogryra africana Bartsch, 1915: 173, pl. 36, figs 4–6. Type loc.: Port Alfred, E. Cape; holotype in USNM (250553).

Distribution. East London to Algoa Bay, beach-drift to 100 m (no data for living specimens).

Dikoleps Höisæter, 1968. Type species (o.d.): *Margarita pusilla* Jeffreys, 1847.

***Dikoleps farica* (Bartsch, 1915)—new combination**

(Figure 5D–F)

Cyclostremella farica Bartsch, 1915: 169, pl. 32, figs 7–9. Type loc.: Port Alfred, E. Cape; holotype in USNM (250556).

Distribution. East London to Port Alfred; beach drift to 100m (no data for living specimens).

Lodderena Iredale, 1924. Type species (o.d.): *Cyclostrema minima* Tennison-Woods, 1878.

***Lodderena arifca* (Bartsch, 1915)—new combination**

(Figure 5G–I)

Vitrinella (Docomphala) arifca Bartsch, 1915: 168, pl. 36, figs 7–9. Type loc.: Port Alfred, E. Cape; holotype in USNM (250554).

Vitrinella arifca—Turton, 1932: 197, no. 1367. Barnard, 1963c: 178. Kensley, 1973: 68, fig. 210

Distribution. Southern Cape coast (Port Alfred to False Bay); beach-drift (no data for living specimens).

Parviturbo Pilsbry & McGinty, 1945. Type species (o.d.): *Parviturbo rehderi* Pilsbry & McGinty, 1945.

***Parviturbo agulhasensis* (Thiele, 1925)—new combination**

(Figure 3K)

Vitrinella agulhasensis Thiele, 1925: 37[71], pl. 3[15], fig. 17. Barnard, 1963c: 178. Kensley, 1973: 68, fig. 213. Type loc.: Valdivia St'n 95 (34°51'S: 19°37.8'E), 7.5 km south of Quoin Point, 80 m and St'n 106 (35°26.8'S: 20°56.2'E), Agulhas Bank [SE of Cape Agulhas, ca 70–80 m]; two syntypes from St'n 95 in ZMB.

Parviturboides agulhasensis—Kilburn, 1977: 181.

Distribution. Central KwaZulu-Natal (off Durban Bluff) to the Agulhas Bank (Cape Agulhas area, 70–420 m (no data for living specimens).

***Parviturbo alfredensis* (Bartsch, 1915)—new combination**

(Figure 3L)

Leptothyra alfredensis Bartsch, 1915: 149, pl. 32, figs 1–3. Turton, 1932: 178, no. 1255. Barnard, 1963a: 227. Kensley, 1974: 46, fig. 118. Type loc.: Port Alfred, E. Cape; holotype in USNM (250500).

Cyclostrema alfredensis Bartsch, 1915: 169, pl. 35, figs 6–8. Type loc.: Port Alfred, E. Cape; holotype in USNM (250501a).

Syn. nov.

Parviturboides alfredensis—Kilburn, 1977: 181.

Distribution. East London to Cape Agulhas; known only from beach-drift (no data for living specimens).

Notes. Similar to, but considerably larger than *P. agulhasensis* (diameter 3.3–4.0 mm vs. 1.9 mm), and with more distinct axial sculpture in the cord intervals.

***Parviturbo sola* (Barnard, 1963)—new combination**

Leptothyra sola Barnard, 1963a: 231, fig. 9e. Kensley, 1973: 46, fig. 124. Type loc.: ‘probably from Algoa Bay’; holotype in SAMC (A9288).

Distribution. Known only from the type locality.

Pondorbis Bartsch, 1915. Type species (o.d.): *Pondorbis alfredensis* Bartsch, 1915.

***Pondorbis alfredensis* Bartsch, 1915**

(Figure 5J–L)

Pondorbis alfredensis Bartsch, 1915: 171, pl. 36, figs 1–3. Barnard, 1963c: 180. Kensley, 1974: 68, fig. 207 [not 208 as cited].

Type loc.: Port Alfred, E. Cape; holotype in USNM (250557).

Pondorbis admirabilis Turton, 1932: 200, pl. 52, no. 1389. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Pondorbis iotooides Turton, 1932: 200, pl. 52, no. 1390. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Pondorbis inconspicua Turton, 1932: 200, pl. 52, no. 1391. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Distribution. KwaZulu-Natal south coast (Aliwal Shoal) to Algoa Bay; beach-drift to 27 m (no data for living specimens).

Notes. This species shows considerable resemblance to species of *Liotella* Iredale, 1915. The two generic names were both published in 1915, *Liotella* on 12 July and *Pondorbis* on 28 July, the former thus has priority, should the two be deemed synonymous when studied in more detail.

Skenea J. Fleming, 1828. Type species (s.d. Gray 1847): *Helix serpuloides* Montagu, 1808.

***Skenea fuscomaculata* (G.B. Sowerby (III), 1892)—new combination**

(Figures 4N–P, 5M–O, 10C, D)

Solariella fusco-maculata G.B. Sowerby (III), 1892: 44, pl. 2, fig. 46. Type loc.: Port Elizabeth; lectotype in NHM (NHMUK 1899.4.14.3556), designated by Herbert (1987: 376, figs 193–195).

Solariella beckeri G.B. Sowerby (III), 1901: 214, pl. 22, fig. 21. Type loc.: The Kowie [Port Alfred], E. Cape; lectotype in NHM (NHMUK 1901.10.3.144), designated Herbert (1987: 376, figs 196–198).

Cyclostremella africana Bartsch, 1915: 170, pl. 29, figs 1–3. Barnard, 1963a: 232. Kensley, 1974: 68, fig. 208 [not 207 as cited]. Type loc.: Port Alfred, E. Cape; holotype in USNM (187101).

Solariella fuscomaculata—Turton, 1932: 189, no. 1323. Barnard, 1963a: 239 [as synonym of ‘*Solariella laevissima*’].

Solariella rufanensis Turton, 1932: 189, pl. 47, no. 1324. Type loc.: Port Alfred, E. Cape; holotype in OXUM.

Solariella pulchella Turton, 1932: 190, pl. 47, no. 1325. Type loc.: Port Alfred, E. Cape; holotype in OXUM.

‘*Solariella*’ *fuscomaculata*—Herbert, 1987: 374, figs 193–203. Herbert, 1992b: 123, figs 1, 2 (radula).

Distribution. E. Cape (Port Alfred) to False Bay; beach-drift to 32 m (living 32 m).

Notes. The referral of this species to *Skenea* is tentative. It is certainly not a *Solariella* and the radula morphology (Herbert 1992b and Fig. 10C, D herein) is suggestive of skeneid affinity, but its generic relationships remain uncertain. The radula formula is $\infty + 5 + 1 + 5 + \infty$ and the rachidian and inner two pairs of laterals lack a shaft and cusp, and are broadly expanded laterally (Figs 10C, D). Laterals 3–5 have a slender shaft with a single dominant cusp and bear smaller denticles on the outer margin just prior to the cusp. The base plates of these teeth also have a large alate process on the outer margin, decreasing in size from the third to the fifth. The marginals are numerous, simple and slender, with a well-developed food groove beneath the cusps.

***Skenea inclinans* (Barnard, 1963)—new combination**

Vitrinella inclinans Barnard, 1963c: 179, text fig. 35c. Kensley, 1973: 68, fig. 211. Type loc.: 34°27'S: 25°42'E, 256 fathoms [south of Port Elizabeth, 468 m]; six syntypes in SAMC (A29680).

Distribution. Known only from the type locality.

Notes. The generic affinity of this species is unclear. I tentatively refer it to *Skenea* on account of its resemblance to *Skenea ossiansarsi* Warén, 1991.

FAMILY: SOLARIELLIDAE Powell, 1951

Ilanga Herbert, 1987. Type species (o.d.): *Trochus laevissimus* Martens, 1881.

***Ilanga agulhasensis* (Thiele, 1925)**

Solariella agulhasensis Thiele, 1925: 17[51], pl. 1[13], fig. 26. Barnard, 1963a: 238 (in part, includes *I. rhyssomphala* Herbert, 1987), fig. 10g. Kensley, 1973: 42, fig. 98. Type loc.: *Valdivia* St'n 106 (35°26.8'S: 20°56.2'E), Agulhas Bank [SE of Cape Agulhas, ca 70–80 m]; holotype in ZMB.

Ilanga agulhasensis—Herbert, 1987c: 297, figs 7–10.

Distribution. Agulhas Bank, from Port Grosvenor to False Bay; 50–420 m (living 80–220 m).

***Ilanga bicarinata bicarinata* (A. Adams & Reeve, 1850)—revised taxonomy**

Margarita bicarinata A. Adams & Reeve, 1850 in 1848–1850: 49, pl. 11, fig. 11a, b. Type loc.: Eastern Seas [HMS *Samarang*], erroneous, here emended to Agulhas Bank; holotype in NHM (NHMUK 1879. 2.26.186), figured by Herbert (1987c: figs 217–219).

Solariella undata G.B. Sowerby (II), 1870: 251. E.A. Smith, 1906: 55. Barnard, 1963a: 236, fig. 10b, d, f. Kensley, 1973: 44, fig. 107. Type loc.: Agulhas Bank, S. Africa; two probable syntypes in NMW (55.158.05.52), none in NHM (Herbert 1987c). **Syn. nov.**

Minolia undata—Martens, 1904: 47, pl. 5, fig. 5.

Solariella gratiosa Thiele, 1925: 15[49], pl. 1[13], fig. 20. Type loc.: *Valdivia* St'n 103 (35°10.5'S: 23°02'E), 500 m [slope off Agulhas Bank, south of Knysna]; two syntypes in ZMB (in poor condition). **Syn. nov.**

Solariella valdiviae Thiele, 1925: 13[47] pl. 1[13], fig. 15. Type loc.: *Valdivia* St'n 104 (35°16'S: 22°26.7'E), Agulhas Bank, off Mossel Bay, 155 m; holotype in ZMB. **Syn. nov.**

Ilanga bicarinata—Herbert, 1987c: 380, figs 217–219.

Ilanga gratiosa—Herbert, 1987c: 305.

Ilanga undata undata—Herbert, 1987c: 326, figs 80–84, 86, 87.

Distribution. Algoa Bay (off Cape Recife) to Atlantic Cape (off Namaqualand); 108–400 m (living 108–171 m).

Notes. The ‘Eastern Seas’ locality cited as the ‘habitat’ for many taxa described from the voyage of HMS *Samarang* is notoriously vague and frequently erroneous (Petit 2007; Herbert 2013). In 1987, I speculated that *Margarita bicarinata* A. Adams & Reeve, 1850 might be another example of a South African taxon being incorrectly localised as originating from ‘Eastern Seas’. At that time, however, the solariellid fauna of the central Indo-West Pacific was little known and, erring on the side of caution, I was reluctant to definitively conclude that *Margarita bicarinata* was in fact a South African rather than an oriental species. In the intervening years the solariellid fauna the ‘Eastern Seas’ has become better documented (Poppe Tagaro & Dekker 2006; Poppe & Tagaro 2008c; Vilvens 2009; Williams *et al.* 2013; Vilvens, Williams & Herbert 2014; Vilvens & Williams in press), but no species resembling *Margarita bicarinata* has been encountered. As a result, I believe it can be justifiably concluded that *Margarita bicarinata* was originally mislocalised and that it is in fact the Agulhas Bank taxon currently known by the name *Ilanga undata undata*. Similarly mislocalised South African species include *Marginella diadochus* A. Adams & Reeve, 1848, *Pleurotoma impages* Adams & Reeve, 1848 and *Turritella declivis* A. Adams & Reeve in Reeve, 1849 (Herbert 2013).

The syntypes of *Solariella gratiosa* Thiele, 1925 are in poor condition, but appear to represent elevated specimens of *Ilanga b. bicarinata*.

Ilanga bicarinata sphinx Herbert, 1987

Ilanga undata sphinx Herbert, 1987c: 328, figs 85, 88–93. Type loc.: off Whale Rock, Transkei (31°58.8'S: 29°16.6'E), 90 m; holotype in NMSA (C9946/T3504).

Distribution. Central Zululand (off Neill Peak) to E. Cape (off East London); 70–500 m (living 90–400 m).

Ilanga biradiatula (Martens, 1902)

Solariella biradiatula Martens, 1902: 242. Martens, 1904: 123, pl. 5, fig. 3. Thiele, 1904: 161, pl. 8[3], fig. 37. Type loc.: Valdivia St'n 243, off Dar-es-Salaam (06°39'S: 39°30'E), in approx. 400 m; three syntypes in ZMB, only one in good condition.

Solariella (Microgaza) meyeri Kilburn, 1973: 560, figs 1d, 2c, 3a, b, 4a. Type loc.: said to be off the Tugela River mouth (about 29°11'S) in 75 fathoms [137 m]; holotype in NMSA (A1/T1695).

Ilanga biradiatula—Herbert, 1987c: 299, figs 11–15. Williams *et al.*, 2013: 8.

Distribution. Western Indian Ocean, from Tanzania and northern Madagascar to southern Transkei (off Stony Point); 137–680 m (living 350–524 m).

Ilanga discus Herbert, 1987

Ilanga discus Herbert, 1987c: 302, figs 16–20. Williams *et al.*, 2013: 7. Type loc.: off Durban, KwaZulu-Natal (29°53.3'S: 31°11.4'E), 195 m; holotype in NMSA (B5905/T3467).

Distribution. South-western Indian Ocean; from north-western Madagascar (Williams *et al.* 2013) to central KwaZulu-Natal (off Durban); 165–300 m (living 165–195 m).

Ilanga furtiva Herbert, 1987

Ilanga furtiva Herbert, 1987c: 303, figs 21–24. Type loc.: NE of Mtamvuna River, KwaZulu-Natal (31°04.5'S: 30°16.4'E), 45 m; holotype in NMSA (D3998/T3465).

Distribution. Northern Zululand (off Sodwana Bay) to KwaZulu-Natal south coast (off Port Edward); 45–90 m (living 45–70 m).

Ilanga humillima (Thiele, 1925)

Solariella humillima [sic] Thiele, 1925: 16[50].

Solariella humillima Thiele, 1925: 324[358], pl. 1[13], fig. 22. Type loc.: Valdivia St'n 101 (33°50.5'S: 25°48.8'E), Algoa Bay (no depth given); five syntypes in ZMB.

"*Solariella*" *humillima*—Herbert, 1987c: 377.

Ilanga millardi Herbert, 1987c: 318, figs 61–64. Type loc.: *ex pisce*, Cape St Blaize area; holotype in NMSA (D4380/T3654).

Syn. nov.

Distribution. Agulhas Bank, from Algoa Bay to False Bay; 52–90 m (living 52–55 m).

Notes. Subsequent to describing this material as *Ilanga millardi*, I have been able to examine Thiele's type material in ZMB and have established that *Solariella humillima* Thiele, 1925 is conspecific with *I. millardi*.

Ilanga impolita Herbert, 1987

Ilanga impolita Herbert, 1987c: 305, figs 25–28. Type loc.: off Nthlonyane River, Transkei (32°17.5'S: 29°03.9'E), 130 m; holotype in NMSA (C7941/T3647).

Distribution. E. Cape, known only off the coast of central and southern Transkei (Presley's Bay to Qora River); 68–420 m (no data for living specimens).

Ilanga kilburni Herbert, 1987

Ilanga kilburni Herbert, 1987c: 307, figs 29–33. Type loc.: off Nthlonyane River, Transkei (32°18.2'S: 29°06.2'E), 550 m; holotype in NMSA (C9893/T3471).

Distribution. Eastern Cape, from Waterfall Bluff to East London, perhaps extending to Mossel Bay; 165–550 m (living specimens the same, but mostly deeper than 400 m).

Ilanga laevissima (Martens, 1881)

Trochus laevissimus Martens, 1881: 65. Type loc.: 33°59'S: 17°51'E, 50 fathoms [*ca* 55 km west of Table Bay, 91 m]; holotype in ZMB (129315).

Minolia (Nachaeroplax) congener G.B. Sowerby (III), 1903: 223, pl. 5, fig. 2. Type loc.: Cape Infanta bearing N $\frac{1}{4}$ W; distant 82 miles; depth, 40 fathoms [73 m]; one syntype in SAMC (A5257), figured by Herbert (1987: figs 34–36), two syntypes in NHM (NHMUK 1903.7.27.67–8).

Minolia laevissima—G.B. Sowerby (III), 1903: 231, pl. 5, fig. 1.

Solariella laevissima—Martens, 1904: 49, pl. 5, fig. 2. E.A. Smith, 1906: 56. Barnard, 1963a: 239, fig. 10c. Kensley, 1973: 42, fig. 103.

Solariella congener—E.A. Smith, 1906: 55.

Solariella nitens Thiele, 1925: 14[48], pl. 1[13], fig. 16. Type loc.: Valdivia St'n 113, SW of Cape Point (34°33.3'S: 18°21.2'E), 318 m; three syntypes in ZMB.

Ilanga laevissima—Herbert, 1987c: 310, figs 1–3, 6, 34–50 (detailed synonymy and chresonymy). Williams *et al.*, 2013: 9.

Distribution. Southern Mozambique to W. Cape (off Table Bay); 40–350 m (living 55–270 m).

Notes. Molecular sequence data has demonstrated that the material studied by Barnard (1963a) and Herbert (1987c) is composite, containing at least one additional cryptic species (Williams *et al.* 2013). Further studies are needed to resolve the taxonomy of this complex.

Ilanga lirellata Herbert, 1987

Ilanga lirellata Herbert, 1987c: 314, figs 51–55. Type loc.: off Umlaas Canal, KwaZulu-Natal (29°58.5'S: 31°00.8'E), 75 m; holotype in NMSA (D1610/T3495).

Distribution. Northern Zululand (off Lala Neck) to KwaZulu-Natal south coast (off Umgababa); 65–152 m (living 65–90 m).

Ilanga maculicincta Herbert, 1987

Ilanga maculicincta Herbert, 1987c: 316, figs 56–60. Type loc.: off Nthlonyane River, Transkei (32°16.7'S: 29°06.0'E), 300 m; holotype in NMSA (C9636/T3486).

Distribution. KwaZulu-Natal south coast (off Umlaas Canal) to southern Transkei (off Qora River); 95–350 m (living 196–300 m).

Ilanga platypeza Herbert, 1987

Ilanga platypeza Herbert, 1987c: 319, figs 65–69. Type loc.: off Mncwasa Point, Transkei (32°05.2'S: 29°05.7'E), 32–35 m; holotype in NMSA (C2755/T3668).

Distribution. Known only off southern Transkei (Mncwasa Point to Qolora River); 32–70 m (living 41–70 m).

Ilanga polita Herbert, 1987

Ilanga polita Herbert, 1987c: 321, figs 70–74. Type loc.: off Mbashe River, Transkei (32°23.6'S: 28°59.2'E), 295–350 m; holotype in NMSA (C9950/T3658).

Distribution. Known only off southern Transkei (Whale Rock to Kei River); 95–500 m (living 95–350 m).

***Ilanga rhyssomphala* Herbert, 1987**

Solariella agulhasensis Barnard, 1963a: 238 (in part). Kensley, 1973: 42, fig. 8.

Ilanga rhyssomphala Herbert, 1987c: 324, figs 75–79. Type loc.: off Umhlaas Canal, KwaZulu-Natal (30°00.8'S: 31°03.6'E), 150 m; holotype in NMSA (D1170/T3478).

Distribution. Southern Mozambique (Inhambane area) to central KwaZulu-Natal (off Amanzimtoti); 50–500 m (living 150–270 m).

***Ilanga whitechurchi* (Turton, 1932)**

Gibbula whitechurchi Turton, 1932: 189, pl. 47, no. 1321. Springsteen, 1982: 6. Type loc.: Port Alfred, E. Cape; holotype in OXUM, figured by Herbert (1987c: fig. 100).

Ilanga whitechurchi—Herbert, 1987c: 331, figs 94–103.

Distribution. Agulhas Bank, from central Transkei (off Presley's Bay) to False Bay; beach-drift to 120 m (living 60–120 m).

***Spectamen* Iredale, 1924.** Type species (o.d.): *Trochus philippensis* Watson, 1880.

***Spectamen adarticulatum* (Barnard, 1963)**

Minolia adarticulata Barnard, 1963a: 235, fig. 11f. Kensley, 1973: 40, fig. 86 (not 85). Type loc.: off Hood Point, 49 fathoms; erroneous, emended to off Durban, 115–305 m by Herbert (1987c: 344); lectotype and paralectotype in SAMC (A9277), designated by Herbert (1987c: 344, figs 121–123).

Spectamen adarticulatum—Herbert, 1987c: 342, figs 120g, 121–125.

Distribution. Northern Zululand (off Dog Point) to KwaZulu-Natal south coast (off Amanzimtoti); 110–400 m (living 150–400 m).

***Spectamen flavum* Herbert, 1987**

Spectamen flavum Herbert, 1987c: 346, figs 120d, 126–130. Type loc.: off Mbabshe River, Transkei (32°23.6'S: 28°59.2'E), 295–350 m; holotype in NMSA (C9593/T3444).

Distribution. Central KwaZulu-Natal (off Durban) to E. Cape (off Kei River); 95–420 m (living specimens the same).

***Spectamen franciscanum* (Barnard, 1963)**

Solariella franciscana Barnard, 1963a: 243, fig. 10e, 11b. Kensley, 1973: 42, fig. 100. Type loc.: off Cape St Francis, E. Cape, 75 fathoms [137 m]; holotype in SAMC (A3615), figured by Herbert (1987: figs 131–133).

Spectamen franciscana—Kilburn, 1977: 178, fig. 4.

Spectamen franciscanum—Herbert, 1987c: 348, figs 120e, 131–137.

Distribution. Eastern Agulhas Bank, from Mgazi River to Cape St Blaize; 137–430 m (living 171–430 m).

***Spectamen gerula* Herbert, 1987**

Spectamen gerula Herbert, 1987c: 351, figs 120a, 138–146. Type loc.: off Mnchwasa Point, Transkei (32°06.9'S: 29°07.3'E), 90 m; holotype in NMSA (C9570/T3409).

Distribution. KwaZulu-Natal south coast (off Park Rynie) to E. Cape (off East London); 50–500 m (living 50–300 m).

***Spectamen geruloides* Herbert, 1987**

Spectamen geruloides Herbert, 1987c: 355, figs 120b, 147–150. Type loc.: off Scottburgh, KwaZulu-Natal, 100 m; holotype in NMSA (B3473/T3432).

Distribution. Southern Mozambique (off Ponta Techobanine) to Pondoland (off N'tafufu River); 50–215 m (living 50–130 m).

***Spectamen martensi* sp. n.**

(Figure 6E–G)

Spectamen semisculptum (non *Cyclostrema semisculptum* Martens, 1904)—Herbert, 1987c: 369, figs 120k, 179–183 (including protoconch and radula).

The material discussed as *Spectamen semisculptum* by Herbert (1987c) was referred to Martens' taxon with some hesitation since the type material was not then available to be consulted due to political considerations. Subsequent examination of the two syntypes (ZMB) revealed that they represent juvenile specimens of the variable '*Solariella*' *intermissa* Thiele, 1925. Being an earlier name, *semisculptum* must take precedence (see *Zetela semisculpta*). As a result, the material identified as *Spectamen semisculptum* by Herbert (1987c) lacks a name. To remedy this I here propose the name *Spectamen martensi* for this species and provide a formal description below.

Examined material (all NMSA, dredged R.V. *Meiring Naudé*): **Holotype:** South Africa, E. Cape, Transkei, off Waterfall Bluff (31°30.15'S: 29°55.8'E), 300 m, st'n E12 (C9714/T4032); diameter 4.5 mm, length 3.7 mm.

Paratypes (3): *KwaZulu-Natal*: off Melville (30°43.1'S: 30°39.2'E), living, 380–420 m, coarse sand, sandstone, little life, st'n X8, 22/vii/1982 (B8849/T4079, one specimen; D4381/T4080, one specimen, living). *E. Cape*: same data as holotype (P0340/T4033, one specimen).

Diagnosis. Shell small, whitish, without colour pattern; slightly wider than high; whorls rounded, without shoulder; sculptured by close set spiral lirae, not corded; axial sculpture of sub-sutural and umbilical pliculae.

Description. Shell small, turbiniform, height moderate (L/D = 0.77–0.89); whorls evenly rounded and lacking shoulder; suture slightly sunken; periphery at mid-whorl; protoconch large and globose, diameter 600–800 µm; teleoconch of up to three whorls. Sculpture of spiral lirae and axial pliculae; spiral lirae begin at start of teleoconch, approx. 10 on first whorl (only visible in freshest shells) becoming more numerous in later whorls as intermediaries develop; lirae similar on base and in umbilicus. Axial sculpture of close set sub-sutural pliculae starting near beginning of second whorl; pliculae obsolete toward periphery but reappear on base near umbilicus. Umbilicus deep, relatively narrow but expanding rapidly; margin evenly rounded, pliculate. Aperture almost circular, peristome virtually complete; outer lip prosocline, smooth; interior not obviously nacreous.

Colour: White, translucent, dark colour of visceral mass shows through apex of live-taken specimens.

Dimensions: Largest specimen, diameter 4.7 mm. length 3.6 mm

Radula (Herbert 1987c: fig. 183): Rachidian and inner laterals broader than in other local forms, similar to those of *S. philippense*; outer lateral long and slender; latero-marginal plate short.

External anatomy: As in *S. pardalis*, mantle cavity dark brown.

Distribution. Southern KwaZulu-Natal (off Melville) to E. Cape (off Waterfall Bluff), 300–420 m (living 380–420 m).

Notes. With its rounded whorl profile, close-set spiral liration and large protoconch, *Spectamen martensi* is most similar to *S. multistriatum* (Thiele, 1925). That species, however, is larger and lacks axial pliculae. The large protoconch suggests that, like several other South African species of *Spectamen*, this taxon broods its developing larvae in the mantle cavity (Herbert 1987c).

Etymology. The species is named in honour of the German malacologist K.E. von Martens (1831–1904).

***Spectamen multistriatum* (Thiele, 1925)**

Solariella multistriata Thiele, 1925: 15[49], pl. 1[13], fig. 18. Barnard, 1963a: 238 (in part, material mixed). Type loc.: Valdivia St'n 104 (35°16'S: 22°26.7'E), Agulhas Bank, off Mossel Bay, 155 m; three syntypes in ZMB.

Spectamen multistriatum—Herbert, 1987c: 357, figs 5, 120l, 151–157.

Distribution. Agulhas Bank, from southern Transkei (off Whale Rock) to False Bay; 57–550 m (living 57–340 m).

***Spectamen pardalis* Herbert, 1987**

Spectamen pardalis Herbert, 1987c: 360, figs 118, 120c, 158–162. Type loc.: off Whale Rock, Transkei (31°59.5'S: 29°16.9'E), 90 m; holotype in NMSA (C9594/T3438).

Distribution. Central KwaZulu-Natal (off Umlaas Canal) to southern Transkei (off Kei River); 70–220 m (living 70–165 m).

***Spectamen roseapicale* Herbert, 1987**

Spectamen roseapicale Herbert, 1987c: 362, figs 120f, 163–166. Type loc.: off East London (33°06.8'S: 28°04.9'E), 90 m; holotype in NMSA (B7834/T3426).

Distribution. Northern Zululand (off Dog Point) to W. Cape (off Cape St Blaize); 90–173 m (living 90–150 m).

***Spectamen rubiolae* Herbert, 1987**

Spectamen rubiolae Herbert, 1987c: 364, figs 120i, 167–171. Type loc.: off Mncwasa Point, Transkei (32°06.5'S: 29°07.6'E), 90 m; holotype in NMSA (C9573/T3455).

Distribution. Northern Zululand (off Gipsy Hill) to southern Transkei (off Nthlonyane River); 65–250 m (living 65–150 m).

***Spectamen ruthae* Herbert, 1987**

Spectamen ruthae Herbert, 1987c: 366, figs 120h, 172–178. Type loc.: off Ubombo, Transkei (31°53.7'S: 29°16.7'E), 40–45 m; holotype in NMSA (C9572/T3421).

Distribution. Known only from off the coast of central and southern Transkei (Presley's Bay to Qora River); 40–280 m (living 40–45 m).

***Spectamen sulculiferum* Herbert, 1987**

Spectamen sulculiferum Herbert, 1987c: 371, figs 120m, 184–186. Type loc.: off Sandy Point, Transkei (33°29.2'S: 28°45.2'E), 450 m; holotype in NMSA (C6884/T3470).

Distribution. Known only from the type locality.

#*Zetela* Finlay, 1926. Type species (o.d): *Minolia textilis* Murdoch & Suter, 1906.

***Zetela semisculpta* (Martens, 1904)—revised taxonomy—new combination**

Cyclostrema (Tubiola) semisculptum Martens, 1904: 49, pl. 5, fig. 6. E.A. Smith, 1906: 53. Type loc.: *Valdivia* St'n 112 (35°32'S: 18°20'E), 2750 m [slope off Agulhas Bank, 135 km south of Cape Point], erroneous *fide* Thiele (1925: 14) = *Valdivia* St'n 103 (35°10'S, 23°02'E), 500 m [slope off Agulhas Bank, 120 km south of Knysna]; two syntypes in ZMB.

Solariella semisculpta—Thiele, 1925: 14[48].

Solariella chuni Thiele, 1925: 17[51], pl. 1[13], fig. 24. Type loc.: *Valdivia* St'n 83 (25°25.3'S: 6°12.4'E), no depth given [well off Namibia]; two syntypes plus one fragment in ZMB. **Syn. nov.**

Solariella intermissa Thiele, 1925: 15[49], pl. 1[13], fig. 19. Barnard, 1963a: 240. Kensley, 1973: 42, fig. 102. Herbert, 1987c: 334, figs 104–117. Type loc.: *Valdivia* St'n 103 (35°10.5'S: 23°02'E), 500 m [slope off Agulhas Bank, 120 km south of Knysna]; holotype in ZMB. **Syn. nov.**

Solariella gilchristi Barnard, 1963a: 242, fig. 11d. Kensley, 1973: 42, fig. 101. Type loc.: off Buffalo River (East London), 310 fathoms [567 m]; lectotype and paralectotype in SAMC (A3605), designated by Herbert (1987c: 336, figs 104–106). **Syn. nov.**

Solariella macleari Barnard, 1963a: 241, fig. 11c. Kensley, 1973: 42, fig. 104. Type loc.: Cape Point N 89° E, distant 36 miles, 700 fathoms [1280 m]; lectotype and paralectotypes in SAMC (A7417), designated by Herbert (1987c: 336, fig. 116). **Syn. nov.**

Solariella sp.—Barnard, 1963a: 242.

Not *Spectamen semisculptum*: Herbert, 1987c: 369, figs 120k, 179–183 [= *Spectamen martensi* sp. n., see above].

Distribution. Southern Zululand (off Port Durnford) to Namibia (Walvis Ridge); 340–1280 m (living 450–1280 m).

Notes. Subsequent to my revision of the South African Solariellidae (Herbert 1987c), I have been able to examine the type material of *Cyclostrema semisculptum* and found that the specimens represent juveniles of the species previously known as ‘*Solariella*’ *intermissa*. The types of both taxa were from the same *Valdivia* station. As the earlier name, *semisculptum* has precedence over *intermissa*. The species discussed under the name *Spectamen semisculptum* by Herbert (1987c) represents an undescribed taxon (see *Spectamen martensi* above). The morphology of the shell and radula of this species (Herbert 1987c) strongly suggest that it is referable to *Zetela* rather than *Solariella* (cf. Marshall 1999; Williams *et al.* 2013).

***Zetela turbynei* (Barnard, 1963)—new combination**

(Figure 10E, F radula)

Solariella turbynei Barnard, 1963a: 243, fig. 11a. Kensley, 1973: 44, fig. 106. Type loc.: Cape Point, NE ½ N, distant 19 miles, 145 fathoms [265 m]; holotype in SAMC (A9276), figured by Herbert (1987c: figs 187–189).

Spectamen turbynei—Herbert, 1987c: 372, figs 120j, 187–192.

Distribution. Agulhas Bank, from Storms River to Cape Point; 39–217 m (living 101–217 m).

Notes. Living specimens collected subsequent to Herbert (1987c) show that the radula lacks an elongate, cuspless latero-marginal plate (Fig. 10E, F). The species cannot thus be referred to *Spectamen*. The animal has four epipodial tentacles on each side, the first and last of which are larger, a pattern similar to that of *Zetela semisculpta*. As a result I refer the species to *Zetela*.

FAMILY: TROCHIDAE Rafinesque, 1815

SUBFAMILY: CANTHARIDINAE Gray, 1857

Agagus Jousseaume, 1894. Type species (m.): *Agagus agagus* Jousseaume, 1894.

***Agagus agagus* Jousseaume, 1894**

Agagus agagus Jousseaume, 1894: 99. Herbert, 1991b: 884, figs 1–19 (detailed synonymy and chresonymy). Bosch *et al.*, 1995: 33, fig. 31. Steyn & Lussi, 1998: 20, fig. 57. Rusmore-Villaume, 2008: 16. Type loc.: ‘Baie de Tadjoura’, Gulf of Aden [Djibouti]; lectotype in MNHN, designated by Herbert (1991b: 892, figs 1, 2).

Gibbula (Enida) perspectiva G.B. Sowerby (III), 1900: 6, pl. 1, fig. 17. Type loc.: Pondoland, E. Cape; holotype in NHM (NHMUK 1900.5.22.64), figured by Herbert (1991b: figs 17–19).

Gibbula perspectiva—Barnard, 1963a: 280, fig. 180. Kensley, 1973: 38, fig. 81. Richards, 1981: 35, pl. 8, fig. 61. Springsteen, 1982: 5, fig. 25.

Gibbula townsendi—Kilburn & Rippey, 1982: 41, 211, pl. 8, fig. 15.

Distribution. Western Indian Ocean from the Gulf of Oman and Red Sea south through East Africa to E. Cape (Jeffreys Bay); living shallow subtidal to 60 m.

***Agagus stellamaris* Herbert, 1991**

Agagus stellamaris Herbert, 1991b: 893, figs 20–29. Steyn & Lussi, 1998: 20, fig. 58. Type loc.: Conducia Bay, northern Mozambique; holotype in NMSA (K6068/T236).

Distribution. Western Indian Ocean from Kenya to southern Zululand (Mapelane); beach-drift to 60 m (living intertidal to 10 m).

Calliotrochus P. Fischer, 1879. Type species (m.): *Trochus phasianellus* Deshayes, 1863 [=*Margarita marmorea* Pease, 1851].

***Calliotrochus marmoreus* (Pease, 1861)**

Margarita marmorea Pease, 1861: 435. Type loc.: Sandwich Islands [Hawaii]; lectotype in NHM (NHMUK 1962824), designated by Kay (1965: 59).

Calliotrochus marmoreus—Kay, 1965: 59, pl. 9, fig. 5 (lectotype). Herbert, 1998: 547 (detailed synonymy and chresonymy), figs 1–35. Rusmore-Villaume, 2008: 16. Zuschin *et al.*, 2009: 98, pl. 7, fig. 6. Vilvens, 2012: 18.

Gibbula (*Calliotrochus*) *cummingae* Kilburn, 1977: 178, fig. 5. Type loc.: Two Mile Reef, Benguera Island, Bazaruto Archipelago, Mozambique; holotype in NMSA (G4094/T2098).

Distribution. Indo-West Pacific to northern Zululand (Sodwana Bay); local material living on subtidal reefs at 5–30 m.

Gibbula Risso, 1826. Type species (s.d. Herrmannsen 1847): *Trochus magus* Linnaeus, 1758.

***Gibbula beckeri* G.B. Sowerby (III), 1901**

Gibbula beckeri G.B. Sowerby (III), 1901: 214, pl. 22, fig. 22. Barnard, 1963a: 278, fig. 18k. Day, 1969: 161. Kensley, 1973: 38, fig. 76. Richards, 1981: 35, pl. 8, fig. 63. Kilburn & Rippey, 1982: 40, pl. 8, fig. 10. Springsteen, 1982: 2, fig. 20. Steyn & Lussi, 1998: 20, fig. 55. Branch *et al.*, 2010: 174, fig. 76.10. Marais, 2011: 62. Type loc.: Kowie [Port Alfred], E. Cape, evidently erroneous (probably Cape Town *fide* Kilburn & Rippey 1982); two syntypes in NHM (NHMUK 1901.10.3.94–95), Salvador pers. comm. (iii/2015); one syntype in SAMC (A3321).

Distribution. W. Cape (Cape Point) to Namibia (Luderitz); intertidal.

***Gibbula benzi* (Krauss, 1848)**

Trochus benzi Krauss, 1848: 99, pl. 5, fig. 32. Martens, 1874: 129, no. 99. Type loc.: ‘*In litore capensi*’ [on the shore of the Cape]; type material probably lost, none in SMNH (Herbert & Warén 1998).

Trochus ludwigi Krauss, 1848: 99, pl. 5, fig. 33. Turton, 1932: 188. Type loc.: ‘*In litore capensi*’ [on the shore of the Cape]; type material originally in SMNS, now lost (Herbert & Warén 1998).

Margarita pintado Gould, 1861: 16: G.B. Sowerby (III), 1897: 18. Type loc.: Simon’s Bay, Cape Good Hope, 12 fathoms [Simonstown, False Bay, 22 m]; holotype in USNM (213), figured by Bartsch (1915).

Trochus (*Monilea*) *benzi*—Watson, 1886: 71.

Gibbula benzi—Bartsch, 1915: 158. Barnard, 1963a: 276 (in part, includes *G. loculosa* Gould, 1861), fig. 18l. Kensley, 1973: 38, fig. 77. Richards, 1981: 34, pl. 8, fig. 50. Kilburn & Rippey, 1982: 40, pl. 8, fig. 11. Springsteen, 1982: 4, fig. 23. Steyn & Lussi, 1998: 18, fig. 50. Marais, 2011: 62.

Gibbula pintado—Bartsch, 1915: 160, pl. 28, figs 10–12 (holotype).

?*Gibbula kowiensis* Turton, 1932: 187, pl. 46, no. 1308. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula benzi var. *affinis* Turton, 1932 (*non* Garrett, 1872): 188, pl. 46, no. 1315. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula multicolor (*non* Krauss, 1848)—Steyn & Lussi, 1998: 20, fig. 52a, b.

Distribution. Pondoland (Mbotyi) to Cape Agulhas; living LST and shallow subtidal.

***Gibbula capensis* (Gmelin, 1791)**

Trochus capensis Gmelin, 1791: 3573. Krauss, 1848: 100. Martens, 1874: 129, no. 100. P. Fischer, 1878 in 1875–1880: 311, pl. 98, fig. 3. Type loc.: ‘*ad caput bonae spei*’ [Cape of Good Hope]; location of type material unknown.

Gibbula capensis—Bartsch, 1915: 158. Barnard, 1963a: 277, fig. 18n. Day, 1969: 160. Kensley, 1973: 38, fig. 78. Richards, 1981: 35, pl. 8, fig. 57. Kilburn & Rippey, 1982: 40, pl. 8, fig. 12. Springsteen, 1982: 3, fig. 21. Steyn & Lussi, 1998: 18, fig. 51. Branch *et al.*, 2010: 174, fig. 76.7. Marais, 2011: 62.

Distribution. W. Cape (Struisbaai) to Namibia (Luderitz); living intertidal and shallow subtidal to 12 m.

***Gibbula cicer* (Menke, 1844)**

Trochus cicer Menke in Philippi, 1844 in 1842–1845: 91, pl. 3, fig. 5. Krauss, 1848: 98. Martens, 1874: 129, no. 98. P. Fischer, 1878 in 1875–1880: 264, pl. 88, fig. 2. Type loc.: ‘*Caput Bonae Spei*’ [Cape of Good Hope]; type material probably lost.

Trochus zeyheri Krauss, 1852: 33. Type loc.: ‘*In litore capensi*’ [on the shore of the Cape]; type material presumed lost (Herbert & Warén 1999).

Gibbula fulgens Gould, 1861: 21. Bartsch, 1915: 154, pl. 26, figs 4–6. Type loc.: not originally given, later cited as ‘Cape of Good Hope’ by Bartsch (1915); holotype in USNM (2046), figured by Bartsch (1915).

Gibbula musiva Gould, 1861: 21. Type loc.: Simon’s Bay [Simonstown, False Bay]; lectotype in MCZ (169251), designated by Johnson (1964: 113, pl. 6, fig. 1).

Gibbula gaudiosa Gould, 1861: 21. Bartsch, 1915: 156, pl. 28, figs 1–3. Type loc.: False Bay; lectotype in USNM (222), designated by Johnson (1964: 81), figured by Bartsch (1915).

Trochus (Gibbula) cicer—G.B. Sowerby (III), 1889b: 153.

Leptothyra cicer—Pilsbry, 1888: 254, pl. 54, fig. 62.

Gibbula cicer—Pilsbry, 1890 in 1889–1890: 219, pl. 26, figs 18, 19, pl. 62, fig. 75. Bartsch, 1915: 156, pl. 30, figs 8–10. Barnard, 1963a: 272, fig. 18i. Day, 1969: 161. Kensley, 1973: 38, fig. 79. Richards, 1981: 34, pl. 8, fig. 47. Kilburn & Rippey, 1982: 40, pl. 8, fig. 13. Springsteen, 1982: 1, fig. 17. Steyn & Lussi, 1998: 18, fig. 49. Branch *et al.*, 2010: 174, fig. 76.8. Marais, 2011: 62.

Gibbula thalia Bartsch, 1915: 157, pl. 30, figs 1–3. Turton, 1932: 185. Type loc.: Port Alfred, E. Cape; holotype in USNM (187112).

Gibbula globulosa Turton, 1932: 185, pl. 45, no. 1300. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula approximata Turton, 1932: 189, pl. 46, no. 1320. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Not *Gibbula cicer*—Adam & Leloup, 1938: 19.

Distribution. Pondoland (Mbotyi) to Namibia (Luderitz); living intertidal and shallow subtidal to 12 m (form *thalia* to 150 m).

***Gibbula hera* Bartsch, 1915**

Gibbula hera Bartsch, 1915 (non Turton, 1932): 157, pl. 26, figs 1–3. Type loc.: Cape of Good Hope; holotype in USNM (90108a).

Notes. I am unable to associate this name with any species known to occur in South Africa. The taxon was not mentioned by Barnard (1963a), and Kilburn (pers. comm.) was also unable to come to any conclusions regarding its identity. One is left to consider the possibility that the material was mislocalised and is not in fact South African. It should not be confused with *Gibbula hera* Turton, 1932 (=*G. multicolor*).

***Gibbula loculosa* Gould, 1861**

Gibbula loculosa Gould, 1861: 21. G.B. Sowerby (III), 1897: 18. Bartsch, 1915: 153, pl. 23, figs 1–3. Turton, 1932: 188. Springsteen, 1982: 5, fig. 24. Steyn & Lussi, 1998: 20, fig. 56. Type loc.: False Bay, Cape of Good Hope; lectotype in USNM (221), designated by Johnson (1964: 103), figured by Bartsch (1915).

Distribution. Pondoland (off Port Grosvenor) to False Bay; 15–113 m (living 15–100 m).

***Gibbula multicolor* (Krauss, 1848)**

Trochus multicolor Krauss, 1848: 97, pl. 5, fig. 31. Martens, 1874: 129, no. 97. P. Fischer, 1878 in 1875–1880: 316, pl. 99, fig. 3. Type loc.: ‘*in sinu tabulari*’ [Table Bay]; type material probably lost, none in SMNH (Herbert & Warén 1998).

Stomatella biporcata A. Adams, 1850: 33. A. Adams, 1854b: 839, pl. 175, fig. 43. Tomlin, 1921b: 237. Type loc.: ‘*in littoribus Australiae*’ [on the shores of Australia] [Cuming], erroneous (Tomlin, 1921b); three syntypes in NHM (NHMUK 1994039).

Gibbula fucata Gould, 1861: 20. G.B. Sowerby (III), 1894: 372. G.B. Sowerby (III), 1897: 18. Bartsch, 1915: 155, pl. 27, figs 4–6. Type loc.: originally unknown, later given as ‘Cape of Good Hope’ (Johnson 1964); lectotype in USNM (2047), designated by Johnson (1964: 79), figured by Bartsch (1915).

Trochus (Gibbula) bifurcatus [sic]—G.B. Sowerby (III), 1889b: 153.

Gibbula biporcata—G.B. Sowerby (III), 1892: 44, 67, pl. 5, fig. 100.

Gibbula multicolor—Bartsch, 1915: 158. Barnard, 1963a: 274, fig. 18a–f. Day, 1969: 161. Kensley, 1973: 38, fig. 80. Richards, 1981: 35, pl. 8, fig. 58. Kilburn & Rippey, 1982: 41, pl. 8, fig. 14. Springsteen, 1982: 4, fig. 22. Branch *et al.*, 2010: 174, fig. 76.6. Marais, 2011: 62.

Cynisca rufanensis Turton, 1932: 194, pl. 50, no. 1353. Type loc.: Port Alfred, E. Cape; two syntypes in OXUM.

Gibbula becki Turton, 1932: 184, pl. 44, no. 1292. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula distincta Turton, 1932: 186, pl. 45, no. 1306. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula fucata var. *sowerbyi* Turton, 1932: 184, pl. 44, no. 1291. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula hera (*non* Bartsch, 1915) Turton, 1932: 184, pl. 44, no. 1293. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula lauta Turton, 1932: 186, pl. 45, no. 1302. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula lauta var. *jucunda* Turton, 1932: 186. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula lauta var. *pretiosa* Turton, 1932: 186. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula ornata Turton, 1932: 187, pl. 46, no. 1311. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula polychroma Turton, 1932: 187, pl. 46, no. 1310. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula pulchella Turton, 1932: 187, pl. 46, no. 1307. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Gibbula multicolor forma *biporcata*—Barnard, 1963a: 275, fig. 18e.

Not *Gibbula multicolor*—Steyn & Lussi, 1998: 20, fig. 52a, b [=*G. benzii* (Krauss, 1848)].

Distribution. Southern Transkei (Coffee Bay) to Atlantic Cape (Saldanha Bay); living intertidal and shallow subtidal.

Gibbula tryoni Pilsbry, 1890

Gibbula tryoni Pilsbry, 1890 in 1889–1890: 239, pl. 69, figs 20, 21. G.B. Sowerby (III), 1897: 18, pl. 6, fig. 22. Bartsch, 1915: 159. Barnard, 1963a: 280, fig. 18m. Kensley, 1973: 40, fig. 83. Richards, 1981: 35, pl. 8, fig. 60. Kilburn & Rippey, 1982: 41, pl. 8, fig. 16. Springsteen, 1982: 2, fig. 19. Steyn & Lussi, 1998: 20, fig. 54. Marais, 2011: 62. Type loc.: Cape of Good Hope; five syntypes in ANSP (38093).

Gibbula incincta G.B. Sowerby (III), 1894: 372. G.B. Sowerby (III), 1897: 18 [=*G. tryoni*]. Type loc.: Port Elizabeth; location of type material unknown (could not be found in NHM, Salvador pers. comm. iii/2015).

Gibbula aglaia Bartsch, 1915: 158, pl. 27, figs 1–3. Type loc.: Cape of Good Hope; holotype in USNM (102730).

Gibbula medusa Bartsch, 1915: 159, pl. 29, figs 7–9. Type loc.: Cape of Good Hope; holotype in USNM (43011).

Distribution. KwaZulu-Natal north coast (Tongaat) to Port Alfred and perhaps Port Elizabeth; living mostly shallow subtidal, occasionally low intertidal.

Gibbula zonata (Wood, 1828)

Trochus cingulatus (*non* Brocchi, 1814, *nec* Menke, 1828) Megerle von Mühlfeld, 1816: 8, pl. 2, fig. 11a, b. Martens, 1904: 55, 57 note 16. Type loc.: ‘Afrikanische Küste von Marocco’ [African coast of Morocco], erroneous; type material probably in NHMW.

Trochus zonatus Wood, 1828: 17, pl. 5, fig. 34. Krauss, 1848: 97. Martens, 1874: 129, no. 97. Type loc.: no locality given; 13 syntypes in NHM (NHMUK 20100600) (Coan & Petit 2011).

Trochus menkeanus Philippi, 1844 in 1842–1845: 91, pl. 3, fig. 6. Type loc.: ‘Caput Bonae Spei’ [Cape of Good Hope]; type material perhaps in MHNHC, but more probably lost.

Trochus roseus (*non* Gmelin, 1791, *nec* Salis Marschlin, 1793)—Krauss, 1848: 97. Martens, 1874: 129, no. 97. See notes below.

Stomatella margaritana A. Adams, 1850: 33. A. Adams, 1854b: 839, pl. 174, fig. 31 (not 54 as given in text). Tomlin, 1921b: 237. Type loc.: ‘in littoribus Australiae’ [on the shores of Australia] [Cuming], erroneous (Tomlin 1921b); location of type

material unknown (could not be found in NHM, Salvador pers. comm. iii/2015).

Trochus leaensis Watson, 1880: 90. Type loc.: Lea [Sea] Point, Cape Town; location of type material unknown (could not be found in NHM, Salvador pers. comm. iii/2015).

Trochus (Gibbula) zonatus—Watson, 1886: 76, pl. 6, fig. 7.

Trochus (Gibbula) roseus—G.B. Sowerby (III), 1889b: 153.

Oxystele zonatus—G.B. Sowerby (III), 1892: 42.

Oxystele zonata—E.A. Smith, 1903a: 390

Gibbula rosea—Barnard, 1963a: 271, figs 14j, 18g, j. Grindley & Kensley, 1966: 11. Day, 1969: 160. Kensley, 1973: 38, fig. 82. Richards, 1981: 35, pl. 8, fig. 59.

Gibbula zonata—Barnard, 1963a: 271. Kilburn & Rippey, 1982: 41, pl. 8, fig. 17. Springsteen, 1982: 2, fig. 18. Steyn & Lussi, 1998: 20, fig. 53. Branch *et al.*, 2010: 174, fig. 76.9. Marais, 2011: 64.

Gibbula rosea zonata—Day, 1969: 160.

Distribution. W. Cape (Hermanus) to Namibia (Luderitz); living intertidal and shallow subtidal.

Notes. Following Kilburn & Rippey (1982: 41) *Trochus roseus* Gmelin, 1791 is best considered a *nomen dubium*. It was based on a figure (Chemnitz 1781: pl. 171, fig. 1675) which may represent either *Gibbula cicer* or *G. multicolor*.

Jujubinus Monterosato, 1884. Type species (s.d. Pilsbry 1889): *Trochus matonii* Payraudeau, 1826 [= *Trochus exasperatus* Pennant, 1777].

As pointed out by Vilvens (2012), the genus level taxonomy of high-spired cantharidine taxa (tribe Cantharidini of Hickman & McLean, 1990) is far from clear. For the two following species I maintain the current generic referral, but with little confidence. It seems unlikely that *Jujubinus*, with a European type species, will prove to be appropriate for these species once molecular data become available. For the present, however, none of the other potentially applicable generic names stands out as being more suitable.

***Jujubinus hubrechti* Poppe, Tagaro & Dekker, 2006—new record**

(Figure 6H–L)

Jujubinus hubrechti Poppe, Tagaro & Dekker, 2006: 88, pl. 38, fig. 2. Poppe & Tagaro, 2008b: 198, pl. 44, fig. 3. Vilvens 2012: 12, figs 35, 36. Type loc.: Balicasag Island, Philippines, 80–150 m; holotype in NMPM.

?*Calliostoma* sp. 3587—Jay, 2014.

Distribution. Central Indo-West Pacific to the south-western Indian Ocean; off southern Mozambique and northern Zululand (Ponta Techobanine to Gipsy Hill); 50–110 m (no data for living specimens).

Notes. Described from the Philippines and recorded here for the first time in the western Indian Ocean. Rather variable in proportions and sculpture, and often with growth flaws where non-lethal damage has been repaired. Typical specimens have four spiral cords between the subsutural and peripheral keels, but others with coarser sculpture have only three. Some specimens also have a fine secondary spiral thread between the primary cords. As with many Cantharidinae the colour may vary from red/pink to green. A juvenile specimen from Réunion illustrated and identified as *Calliostoma* sp. by Jay (2014) may also be referable to this species. *Jujubinus maldivensis* (E.A. Smith, 1903) is similar, but has a double peripheral keel and attains a larger size.

***Jujubinus suarezensis suarezensis* (P. Fischer, 1878)**

Trochus suarezensis P. Fischer, 1878a: 63. Type loc.: ‘Diego Suarez, ins. Madagascar’; 17 syntypes in MNHN.

Trochus (Calliostoma) suarezensis—Martens, 1880: 297.

Calliostoma farquhari G.B. Sowerby (III), 1892: 43, pl. 2, fig. 42. Type loc.: Port Elizabeth, erroneous, =Durban (cf. Tomlin 1931: 419); three possible syntypes in NHM (NHMUK 18999.4.14.2090–2092) (cf. Tomlin 1931: 419), another in NMSA (B7415/T2850).

Calliostoma biseptatum E.A. Smith, 1906: 54, pl. 8, fig. 4. Type loc.: Durban; holotype in NHM (NHMUK 1906.6.23.21), Salvador pers. comm. (iv/2015).

Cantharidus suarezensis—Dautzenberg, 1929: 538. Kilburn & Rippey, 1982: 40, pl. 8, fig. 5. Kalk, 1995: 255, fig. 9.7d.

Cantharidus fultoni—Barnard, 1963a: 281, figs 14i, 19. Kensley, 1973: 36, fig. 69.

Cantharidus suarezensis suarezensis—Kilburn & Tankard, 1975: 188, fig. 3.

Jujubinus suarezensis—Steyn & Lussi, 1998: 24, fig. 73. Jay, 2014.

Distribution. South-western Indian Ocean, from Kenya and Madagascar to southern Mozambique (Inhaca Island) and formerly to Durban Bay (now evidently extinct there); lives on marine grasses in sheltered lagoonal habitats.

Notes. *Cantharidus suarezensis fultoni* (G.B. Sowerby (III), 1889) is an extinct Pleistocene fossil subspecies occurring in raised beach deposits between Algoa Bay and Mossel Bay.

Oxystele Philippi, 1847. Type species (s.d. Herrmannsen 1847): *Trochus merula* Chemnitz [= *Turbo merula* Röding, 1798, = *Trochus sinensis* Gmelin, 1791].

***Oxystele antoni* nom. nov.**

(Figure 7K–M)

Trochus (Turbo) variegatus (non Gmelin, 1791: 3575 = *Heliacus*) Anton, 1838: 57, no. 2072. Type loc.: not originally given; four syntypes in MTD (504) from ‘Kap der Guten Hoffnung’ [Cape of Good Hope] (Schniebs 1996). On the premise that Anton’s type material was lost, Heller & Dempster (1991: 403, pl. 1m, n) designated a neotype for this species (SAMC A37549). Anton’s collection, however, is not lost and it contains the syntypes mentioned above. As a result Heller & Dempster’s neotype designation must be set aside.

Trochus (Oxystele) variegatus—Krauss, 1848: 96.

Monodonta sagittifera (non Lamarck, 1822)—Pilsbry, 1889 in 1889–1890: 114 (in part).

Trochus variegatus—Martens, 1904: 57 note 15.

Oxystele variegata (in part, includes *O. impervia* (Menke, 1843)—Barnard, 1963a: 268. Day, 1969: 160. Kensley, 1973: 40, fig. 93. Richards, 1981: 36, pl. 9, fig. 67. Kilburn & Rippey, 1982: 42, pl. 9, fig. 4.

Oxystele variegata—Heller & Dempster, 1991: 403, pl. 1m–x, pl. 2d. Branch *et al.*, 2010: 176, fig. 77.3. Van der Bank *et al.*, 2013.

Diloma variegata—Steyn & Lussi, 1998: 24, fig. 76. Marais, 2011: 61.

Distribution. Northern Transkei (Mbotyi) to northern Namibia (Kunene River); intertidal.

Notes. This and the following species were for many years considered to belong to a single variable species under the name *Oxystele variegata* (e.g. Barnard 1963a; Kilburn & Rippey 1982). However, based on analysis of electrophoretic data, Heller & Dempster (1991) postulated that two species were involved, *O. variegata* itself and *O. impervia*, and they provided an indication regarding how these can be distinguished on the basis of shell coloration. More recently, Van der Bank *et al.* (2013), using mitochondrial DNA sequence data, found supporting evidence for two lineages within the ‘*O. impervia*–*variegata* complex’, but noted inconsistencies in terms of the colour patterns supposedly distinctive of the species.

From a nomenclatural perspective, *Trochus variegatus* Anton, 1838 is regrettably a junior primary homonym of *Trochus variegatus* Gmelin, 1791, a well-known species now referred to *Heliacus* d’Orbigny, 1842 (Architectonicidae) (Bieler 1993; Bieler & Petit 2005). Given the uncertainty surrounding species recognition in the ‘*Oxystele impervia*–*variegata* complex’ a major consideration in establishing the correct name to use in place of Anton’s *variegatus* should be the certainty with which the name can be applied to the material currently considered to represent the species.

The name *Trochus indecorus* Philippi, 1846 has been considered a junior synonym of Anton’s *variegatus* (G.B. Sowerby (III) 1892; Barnard 1963a; Heller & Dempster 1991), but Philippi’s figure of *T. indecorus* (Philippi 1848 in 1846–1855: pl. 24, fig. 5), reproduced herein (Fig. 7A), shows a species with a convex columella and a colour pattern unlike that of *T. variegatus* Anton, 1838. In reality it is closer to the species currently known as *Phorcus sauciatus* (Koch, 1845) (Ávila *et al.* 2015; Gofas 2015). *T. indecorus* was originally described without locality, but Philippi later stated that it belonged to a group of species occurring only in South Africa (Philippi 1847: 18). This I consider was erroneous and I do not believe that this name can be considered a junior synonym of Anton’s *T. variegatus*. Like Pilsbry (1889 in 1889–1890) I believe *T. indecorus* to be a synonym of *P. sauciatus* from the subtropical north-eastern Atlantic and Macaronesia. Mention of *T. indecorus* in South Africa by Krauss (1848) was merely a repetition of Philippi’s earlier record. Philippi himself stated ‘Diese Art ist vielleicht nichts weiter als eine Varietät von *Tr. sauciatus* Koch ...’ [This species is perhaps nothing more than a variety of *Tr. sauciatus* Koch] (Philippi, 1851 in 1846–1855: 143).

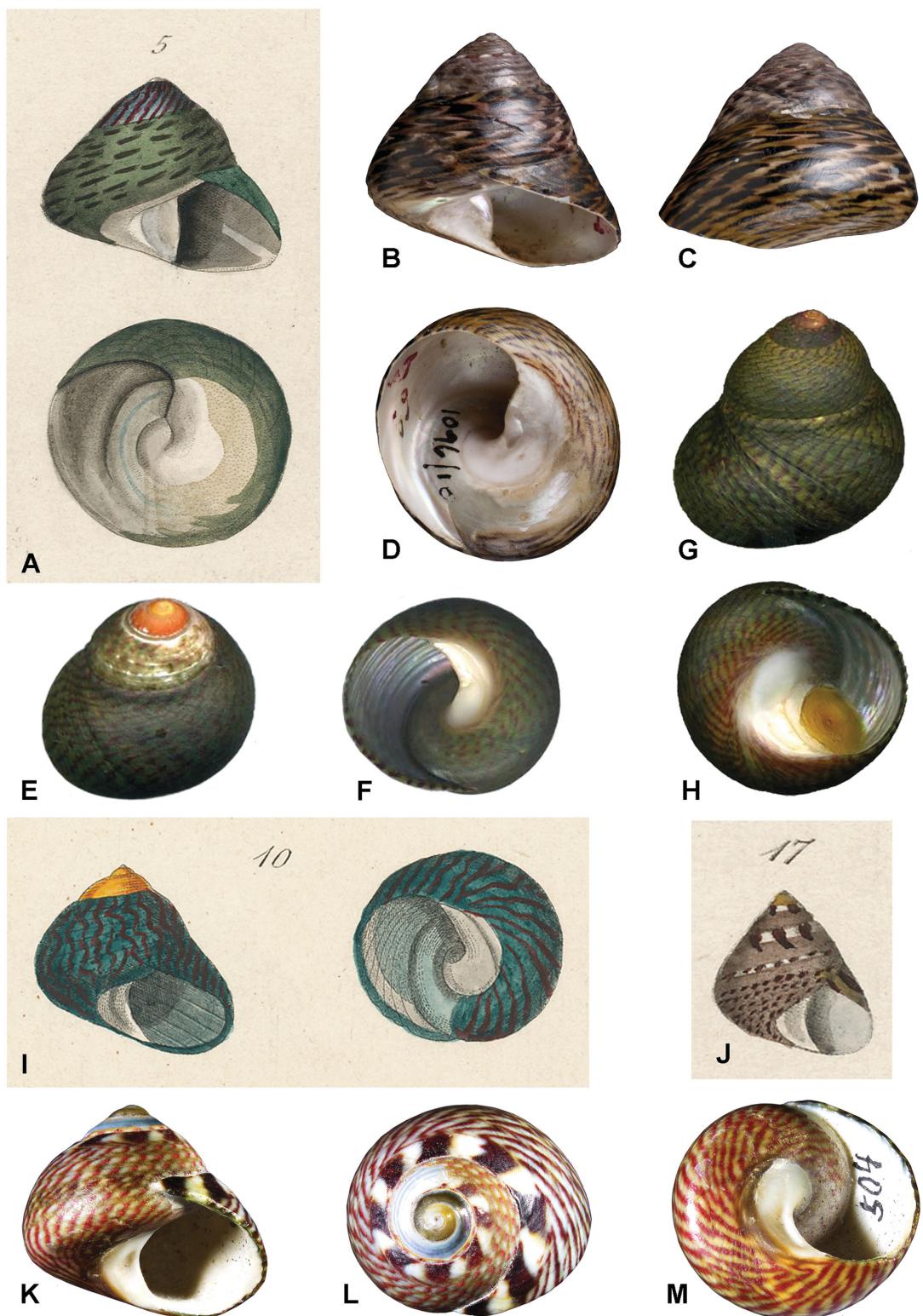


FIGURE 7. **A**, *Trochus indecorus* Philippi, 1846, original figure reproduced from Philippi (1848 in 1846–1855: pl. 24, fig. 5), diameter 12 linien [=26 mm]. **B–D**, *Trochus sagittiferus* Lamarck, 1822, holotype diameter 22 mm (MHNG, INVE 51508). **E**, **F**, *Oxystele fulgurata*, Saco Mar, Namibe, Angola, height 16.4 mm (images courtesy of P. Ryall). **G**, **H**, *Oxystele fulgurata*, Cabo de Santa Maria, Benguela, Angola, height 23 mm (images courtesy of P. Ryall). **I**, *Trochus fulguratus* Philippi, 1849, original figure reproduced from Philippi (1849 in 1846–1855: pl. 39, fig. 10), diameter 8.5 linien [=18.5 mm]. **J**, *Trochus perditus* Koch, 1851, original figure reproduced from Philippi (1848 in 1846–1855: pl. 24, fig. 17, without legend), diameter 5.5 linien [=12 mm]. **K–M**, *Trochus variegatus* Anton, 1838, lectotype, diameter 12.5 mm (MTD 504), (images courtesy of K. Schniebs). [Images not to scale.]

However, like Martens (1904) and Heller & Dempster (1991), I do not agree with Pilsbry in considering *Trochus sagittiferus* Lamarck, 1822 to be a name that can be applied to the '*Oxystele impervia*–*variegata* complex'. Again described without locality, the holotype of this species (MHNG, INVE 51508, Fig. 7B–D) also has a convex columella and a colour pattern unlike that of *T. variegatus*. Neither the holotype nor the figure of *T. sagittiferus* given by Delessert (1841) correspond with Pilsbry's interpretation of the species and it is in fact much closer to *Phorcus sauciatus*, of which it may well be a senior synonym. Thus neither *T. indecorus* nor *T. sagittiferus* are possible replacements for the homonymous *T. variegatus* of Anton (1838).

More recently, Kensley & Penrith (1972) proposed that *Trochus fulguratus* Philippi, 1849, described from 'Gabon Guineae', was a junior synonym of *T. variegatus* Anton, 1838. Philippi had noted that his *T. fulguratus* was very close to *T. impervius* and particularly to *T. variegatus* (Philippi, 1855 in 1846–1855), but he believed that it differed in lacking the articulated subsutural necklace of *variegatus* and had a yellowish rather than a greenish-grey apex. Subsequent to its description, this poorly known taxon seems only to have been recorded from southern Angola (Nicklès 1950; Paes da Franca 1960; Gofas *et al.* 1985). It was not mentioned in a more recent publication discussing the molluscs of Gabon (Bernard 1984) and was merely listed as having been recorded in West Africa by Ardonini & Cossignani (2004). Peter Ryall (pers. comm. viii/2015) has indicated that it does not occur in Gabon or the Gulf of Guinea as a whole, which is devoid of *Oxystele*-like and *Phorcus*-like species and believes, like Gofas *et al.* (1985), that it is restricted to southern Angola. Thus in all likelihood the original 'Gabon Guineae' locality cited for *T. fulguratus* was erroneous and the specimens originated in southern Angola. The whereabouts of the type material of *T. fulguratus*, if still extant, are unknown, but photographs of southern Angolan material (Fig. 7E–H, courtesy of Peter Ryall) closely resemble the original figure of *T. fulguratus* (Philippi, 1849 in 1846–1855: pl. 39, fig. 10) reproduced herein (Fig. 7I), and there can be little doubt that the specimens represent that species. The distinctly concave columella and well-developed umbilical callus confirm that the species is referable to *Oxystele*, as Philippi (1849) originally proposed. Although Kensley & Penrith (1972) could not distinguish between southern Angolan and southern African material, I believe this southern Angolan *O. fulgurata* material is in all probability a distinct species. The dark green ground colour, fine close-set, dark red, zig-zag, axial lines and absence of any trace of a subsutural necklace represent a combination of features that I have not observed in any material from South Africa or Namibia. North of the Kunene River on the Namibia-Angola border, the cold, north-flowing Benguela Current moves off-shore (Lange *et al.* 2014), as a consequence of which, intertidal habitats to the north of this, lying within the 'southern alternance region' (Le Loeuff & von Cosel 1998) are more influenced by the warm, south-flowing Angola Current. Kensley & Penrith (1973) demonstrated that southern Angola (Namibe) lies within the tropical West African faunal province and that the intertidal fauna, including 80% of the mollusc species, is of West African rather than southern African affinity. Spalding *et al.* (2007) similarly regarded the Angolan coast as lying within the tropical Gulf of Guinea marine province. Within this region, Le Loeuff & von Cosel (1998) have identified the area between Lobito and Moçâmedes (Namibe) [the focus of distribution of *O. fulguratus*] as an important refuge area experiencing relatively stable conditions for much of the Neogene.

Another potential synonym of Anton's *T. variegatus* is *T. perdix* Koch, 1851, a further taxon of unknown provenance and one that Pilsbry (1889 in 1889–1890) listed as a synonym of his concept of *T. sagittiferus* [i.e. the South African '*O. impervia*–*variegata* complex']. Philippi's figure of *T. perdix* (Philippi 1848 in 1846–1855: pl. 24, fig. 17, without legend), reproduced herein (Fig. 7J), shows a small, elevated specimen with a distinct subsutural necklace and a predominantly spiral colour pattern below this. Although specimens matching this figure occur in South Africa, morphologically they cannot be conclusively associated with the current concept of *O. variegata* (cf. Heller & Dempster 1991). The largely spiral alignment of the colour pattern is more indicative of *O. impervia* and indeed specimens of similar appearance cluster with typical *O. impervia* specimens in barcoding analyses (Van der Bank *et al.* 2013). Thus again there is little support for employing this name for specimens currently identified as *O. variegata*.

A number of more recently described taxa are also probably referable to the '*O. impervia*–*variegata* complex'. Described by Bartsch (1915) and Turton (1932), these taxa were based on juvenile specimens (height <10 mm), often in poor condition. Heller & Dempster (1991) considered *Oxystele carinata* Turton, 1932 and *O. farquhari* Turton, 1932 to be synonyms of *O. impervia* on account of their orange colour and predominantly spiral colour pattern, and I believe this to be correct. However, in the case of *Gibbula rifaca* Bartsch, 1915, *Oxystele distincta* Turton, 1932, *O. sagittifera rufanensis* Turton, 1932 and *O. tabularis* var. *pulchra* Turton, 1932, I believe that one cannot with any degree of certainty ascribe these to either *O. impervia* or *O. variegata*. The shells of both of these

taxa are simply too variable to draw a definitive conclusion. Even when adult it can be difficult to refer some specimens to either one of these species with confidence (Van der Bank *et al.* 2013) and it is only in adults that some of the more distinctive features become evident. Although *O. distincta* has a bold colour pattern, this comprises spiral bands of black rectangles rather than zigzag red/maroon axial lines, and there is no subsutural necklace. Given these difficulties and the resultant uncertainty, I consider that these four names must be regarded as *nomina dubia*.

In summary, I do not believe that there is an existing name that can be unambiguously considered a valid junior synonym of *Trochus variegatus* (*non* Gmelin, 1791) Anton, 1838. This being the case, the most pragmatic course of action is to designate one of Anton's four syntypes to be the lectotype for his *Trochus variegatus*, and then to propose a replacement name for the species. However, the choice of which of the four syntypes to select in order to preserve current interpretation of the species is critical. These specimens, once considered lost (Heller & Dempster 1991), are in the MTD and photographs supplied by Katrin Schniebs indicate that two of them, described as variety 'Grund morgenroth', are clearly specimens of *O. impervia*, another specimen, described as variety 'Grund gelblich weiss, braun gefleckt, Basis roth punktirt', is also probably referable to *O. impervia*. Only the fourth specimen described as variety 'Grund weiss, mit dichten kirschothen Zic Zac streifen' is clearly consistent with the current concept of, and prevailing use of, the name *O. variegata* (Heller & Dempster 1991; Van der Bank *et al.* 2013). To maintain this interpretation, I therefore designate this specimen as the lectotype of *Trochus variegatus* (*non* Gmelin, 1791) Anton, 1838 (Fig. 7K—M) and provide a new name, *Oxystele antoni*, on account of its homonymy. This will avoid the inevitable uncertainty that would remain had one of the above *nomina dubia* been proposed as a junior synonym instead and in so doing will preserve the current interpretation the species. Given the homonymy here exposed, the use of an alternative name for this species is unavoidable, but I believe that the solution proposed is the one that will result in the most stable nomenclature.

All of the above notwithstanding, there remain unresolved issues regarding the status of *O. antoni* and *O. impervia* as distinct species and their circumscription using morphological characters. Additional molecular studies utilising multiple genetic markers and employing a finer scale approach, including habitat-related data, are needed in order to shed further light on this issue.

***Oxystele impervia* (Menke, 1843)**

Trochus impervius Menke, 1843: 18. Philippi, 1844 in 1842–1845: 139, pl. 4, fig. 5. Philippi, 1851 in 1846–1855: 145, pl. 24, fig. 8. Type loc.: West coast of Australia [erroneous], Cape of Good Hope also mentioned; neotype in SAMC (A37548), designated by Heller & Dempster (1991: 399, pl. 1a, b); neotype loc.: Dalebrook, Cape Peninsula, False Bay, South Africa.

Trochus (Oxystele) impervius—Krauss, 1848: 96 (in part, includes *O. antoni*).

Monodonta (Oxystele) impervia—Troschel, 1879: 231, pl. 23, fig. 3 (radula).

Oxystele impervia—E.A. Smith, 1906: 55. Barnard, 1913: 80, text fig. Heller & Dempster, 1991: 399, pl. 1a–l, pl. 2a, c (further references). Branch *et al.*, 2010: 176, fig. 77.4. Van der Bank *et al.*, 2013.

Oxystele sagittifera perdix (*non* Koch, 1851)—Turton, 1932: 182, pl. 44, no. 1280.

Oxystele carinata Turton, 1932: 183, pl. 44, no. 1282. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Oxystele farquhari Turton, 1932: 183, pl. 44, no. 1285. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required

Oxystele variegata—Barnard, 1963: 268 (in part); Kilburn & Rippey, 1982: 42 (in part), pl. 9, fig. 4 (in part).

Diloma impervia—Steyn & Lussi, 1998: 24, fig. 78.

Distribution. Southern Transkei (Dwesa) to Namibia (Luderitz); intertidal.

Notes. Krauss (1848) recorded this species from the 'Natal coast', indicating that some of the material he included under this name was probably referable to *O. antoni* (see above).

***Oxystele sinensis* (Gmelin, 1791)**

Trochus sinensis Gmelin, 1791: 3583. Type loc.: 'in Sina' [China], erroneous; type material possibly in ZMUC.

Turbo merula Röding, 1798: 86, no. 1118. Type loc.: not given; type material possibly in MDNG or ZMUC

Trochus merula—Dillwyn, 1817: 795. Anton, 1838: 57. Krauss, 1848: 95.

Trochus meruloides Krauss, 1848: 95. Martens, 1874: 128, no. 95. Herbert & Warén, 1999: 226. Type loc.: 'an der Natalküste' [on the Natal coast], erroneous; type material evidently lost.

Oxystele merula—Tomlin, 1931: 418.

Oxystele inflata Turton, 1932: 181, pl. 43, no. 1271. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Oxystele sinensis—Barnard, 1963a: 267, fig. 14f. Kennelly, 1964: 54, pl. 4, fig. 26. Day, 1969: 160. Kensley, 1973: 40, fig. 90. Richards, 1981: 36, pl. 9, fig. 66. Kilburn & Rippey, 1982: 41, pl. 9, fig. 1. Branch *et al.*, 2010: 176, fig. 77.6.

Diloma sinensis—Steyn & Lussi, 1998: 24, fig. 75. Marais, 2011: 61.

Distribution. Transkei (Mbashe River) to west coast of Cape Peninsula (Witsand); intertidal.

***Oxystele tabularis* (Krauss, 1848)**

Trochus (Oxystele) tabularis Krauss, 1848: 97, pl. 5, fig. 30. Type loc.: ‘*in sinu tabulari*’ [Table Bay], erroneous; nine syntypes in SMNH (49610) (Herbert & Warén 1988).

Monodonta (Oxystele) tabularis—Troschel, 1879: 230, pl. 23, fig. 2 (radula). Moura, 1970: 64, pl. 2, fig. 3.

Oxystele tabularis—Barnard, 1963a: 269. Kennelly, 1964: 54, pl. 4, fig. 22. Day, 1969: 160. Kensley, 1973: 40, fig. 91. Richards, 1981: 36, pl. 9, fig. 69. Kilburn & Rippey, 1982: 42, pl. 9, fig. 2. Branch, 1984: 15. Branch *et al.*, 2010: 176, fig. 77.5.

Diloma tabularis—Steyn & Lussi, 1998: 24, fig. 77.

Not *Monodonta (Oxystele) tabularis*—Moura, 1968: 26, pl. 4, fig. 3. [= *Priotrochus obscurus* (Wood, 1828)]

Distribution. Southern Mozambique (Inhambane) to E. Cape (Port Alfred), extending further west during warm water anomalies (Branch 1984); intertidal.

***Oxystele tigrina* (Dillwyn, 1817)—revised taxonomy**

Trochus tigrinus Chemnitz, 1781: 53, pl. 165, fig. 1566 (non-binominal). Anton, 1838: 57, no. 2065. P. Fischer, 1877 in 1875–1880: 174, pl. 58, fig. 1, 1a. Martens, 1874: 128, no. 96.

Trochus merula var. *tigrinus* Dillwyn, 1817: 795. Type loc.: given as East Indies by Chemnitz, emended to Table Bay by Kilburn (1977); type figure Chemnitz (1781: pl. 165, fig. 1566).

Trochus (Oxystele) tigrinus—Krauss, 1848: 96.

Trochus (Oxystele) tamsii (non Dunker, 1845)—Krauss, 1848: 96.

Oxystele tigrina—Troschel, 1879: 235, pl. 24, fig. 1 (radula). Barnard, 1963a: 267. Kennelly, 1964: 54, pl. 4, fig. 23. Day, 1969: 160. Kensley, 1973: 40, fig. 92. Kilburn, 1977: 178. Richards, 1981: 36, pl. 9, fig. 65. Kilburn & Rippey, 1982: 42, pl. 9, fig. 3. Branch *et al.*, 2010: 176, fig. 77.7.

Monodonta tigrina—Odhner, 1923: 5.

Oxystele kraussi Turton, 1932: 182, pl. 43, no. 1275. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Diloma tigrina—Steyn & Lussi, 1998: 24, fig. 74. Marais, 2011: 61.

Distribution. Southern Transkei (Hole-in-the-Wall) to N. Cape (Noup); intertidal.

Notes. Following Kilburn (1977), authorship of this taxon has until now been ascribed to Anton (1838). However, Dillwyn (1817) had earlier validated Chemnitz’s name *Trochus tigrinus*, citing the original Chemnitzian figure. Although cited as a variety, this equates to a subspecies (ICZN Art. 45.6.4) and the name is thus available.

***Priotrochus* P. Fischer, 1879.** Type species (s.d. Wenz 1938): *Trochus obscurus* Wood, 1828.

***Priotrochus obscurus obscurus* (Wood, 1828)**

Trochus obscurus Wood, 1828: 17, pl. 5, fig. 6. Krauss, 1848: 98. Type loc.: not originally given, designated Durban Bay by Herbert (1994a: 140); lectotype and three paratypes in NHM (NHMUK 1992178/1 and 1992178/2–4, Salvador pers. comm. vii/2015), designated by Herbert (1994a: 140, figs 1–4).

Monilea (Priotrochus) obscura—Dautzenberg, 1929: 540. Moura, 1970: 65, pl. 2, fig. 4. Moura, 1976: 46, 51, pl. 2, figs 2a, b. *Priotrochus obscurus*—Barnard, 1963a: 250, figs 13 left, 14d. Kensley, 1973: 42, fig. 95. Herbert, 1988b: 262, pls. 1, 2 (chresonymy). Herbert, 1994a: 139, figs 1–4 (synonymy). Herbert, 1994b: pl. 2b, fig. 2. Bosch *et al.*, 1995: 36, fig. 48. Steyn & Lussi, 1998: 24, fig. 72. Zuschin *et al.*, 2009: 104, pl. 13, fig. 4. Jay, 2014.

Monodonta (Oxystele) tabularis (non Krauss, 1848)—Moura, 1968: 26, pl. 4, fig. 3.

Turbo argyrostomum (non Linnaeus, 1758)—Moura, 1969: 17, pl. 7, fig. 2.

Monilea obscurus—Richards, 1981: 36, pl. 9, fig. 68. Springsteen, 1981: 8, fig. 17.
Monilea obscura—Kilburn & Rippey, 1982: 41, pl. 8, fig. 19.

Distribution. Western Indian Ocean, from the Persian Gulf and Red Sea, through East Africa and Madagascar, south to Inhaca Island and formerly to Durban Bay (now evidently extinct there); intertidal.

Notes. *Priotrochus obscurus ponsonbyi* (G.B. Sowerby (III), 1888) is an extinct Pleistocene fossil subspecies occurring in raised beach deposits between Algoa Bay and Mossel Bay (Herbert 1988b).

***Priotrochus iris* Herbert, 1988**

Priotrochus iris Herbert, 1988c: 503, figs 1–7. Type loc.: SE of Kosi Bay, northern Zululand (26°54.6'S: 32°55.3'E), 50 m; holotype in NMSA (D6179/T1).

Distribution. South-eastern Africa from southern Mozambique (Bazaruto Archipelago) to northern E. Cape (Mzamba); beach-drift to 50 m (living 15–50 m).

SUBFAMILY: FOSSARININAE Bandel, 2009

[#]*Synaptocochlea* Pilsbry, 1890. Type species (o.d.): *Stomatella montrouzieri* Pilsbry, 1890 [*nom. nov.* for *Stomatella picta* Montrouzier, 1862 (*non* d'Orbigny, 1847)].

***Synaptocochlea concinna* (Gould, 1845)—new record**

Stomatella concinna Gould, 1845: 26. Viader, 1937: 56. Johnson, 1964: 58, pl. 21, fig. 7. Type loc.: Sandwich Islands [Hawaii]; holotype in MCZ (169090), figured by Johnson (1964).

Synaptocochlea concinna—Ladd, 1966: 41, pl. 5, figs 20–23. Cernohorsky, 1978: 36, pl. 9, fig. 10. Kay, 1979: 53, fig. 14 H, I. Fukuda, 1993: 26, pl. 7, fig. 83. Wilson, 1993: 69. Herbert, 1996: 417. Zuschin *et al.*, 2009: 97, pl. 7, fig. 3.

Gena concinna—Jay, 2014.

Distribution. Indo-West Pacific to KwaZulu-Natal south coast (Aliwal Shoal); local material 5–50 m (living 15 m).

Notes. Whether South African material is genuinely conspecific with the tropical *S. concinna* requires confirmation. Abbott (1958) suggested that *concinna* was no more than a subspecies of the Caribbean *S. picta* (d'Orbigny, 1847).

SUBFAMILY: MONODONTINAE Gray, 1857

Monodonta Lamarck, 1799. Type species (m.): *Trochus labio* Linnaeus, 1758.

***Monodonta australis* Lamarck, 1822**

Monodonta australis Lamarck, 1922b: 35, no. 11. Dautzenberg, 1929: 538. Viader, 1937: 55. Barnard, 1963a: 253, fig. 14c. Kennelly, 1964: 55, pl. 4, fig. 21. Day, 1969: 159. Kensley, 1973: 40, fig. 89. Richards, 1981: 35, pl. 9, fig. 64. Kilburn & Rippey, 1982: 41, pl. 8, fig. 20. Steyn & Lussi, 1998: 22, fig. 70. Jarrett, 2000: 4, fig. 9. Branch *et al.*, 2010: 176, fig. 77.2. Marais, 2011: 64. Type loc.: 'les mers de la Nouvelle-Hollande' [the seas of Australia]; holotype in MHNG (1096/28), [not discussed by Mermod].

Trochus labio (non Linnaeus, 1758)—Krauss, 1848: 100.

Trochus australis—Krauss, 1848: 100. P. Fischer, 1877 in 1875–1880: 227, pl. 74, figs 1, 2.

Trochus (Monodonta) australis—Martens, 1880: 296. Bisacchi, 1931: 179.

Distribution. Tropical Indian Ocean to E. Cape (East London); intertidal.

Notes. Also recorded from Japan (Sasaki 2000).

SUBFAMILY: STOMATELLINAE Gray, 1840

No stomatelline vetigastropods have been previously recorded from South Africa. However, during the 1980s and 1990s a considerable amount of stomatelline material was collected in northern Zululand by diving and dredging. To date this material has not been worked through thoroughly and revised. This is mostly due to the fact that the taxonomy of stomatelline gastropods is woefully inadequate and confused. Many nominal species are mere colour variants of others, and many were poorly described and illustrated. The subsequent application of names in the more modern literature has lacked consistency and the type material has rarely been consulted and illustrated using modern methods. Consequently, published figures of identified specimens rarely inspire confidence that the material is correctly named. Similar confusion surrounds the use of supraspecific names within the Stomatellinae since these are mostly based on shell characters alone and the taxa remain poorly circumscribed. Monographic revisionary studies with reference to type material and type species are badly needed. For the time being I include this material in this checklist primarily to draw attention to the presence of at least seven stomatelline species in South Africa.

#*Stomatella* Lamarck, 1816. Type species (s.d. Anton 1838): *Stomatella auricula* Lamarck, 1816 (discussed in detail by Herbert 2012).

***Stomatella auricula* Lamarck, 1816—new record**

Stomatella auricula Lamarck, 1816: pl. 450, figs 1a, b. Lamarck, 1822a: 210, no. 4. Mermod & Binder, 1963: 137, fig. 207. Cernohorsky, 1972: 43, pl. 9, fig. 1. Wilson, 1993: 74. Bosch *et al.*, 1995: 37, fig. 57. Verbinnen & Dirkx, 2005: 24, fig. 1. Zuschin *et al.*, 2009: 95, pl. 6, figs 5, 6. Hickman, 2014: 6, figs 3, 4. Jay, 2014. Type loc.: not originally cited, but later given as ‘l’Océan des Moluques et de la Nouvelle-Hollande’ [the ocean of the Moluccas and of Australia] (Lamarck 1822a); lectotype (by inference of probable holotype) in MHNG (Mermod & Binder, 1963: 137, fig. 207). ?*Stomatella varia* A. Adams, 1850: 37. Sheppard, 1984: 46. Fukuda, 1993: 26, pl. 7, fig. 80. Poppe *et al.*, 2006: 102, figs 81, 82 and pl. 48. Poppe & Tagaro, 2008a: 186, pl. 38, fig. 5a, b. Rusmore-Villaume, 2008: 24. Deuss *et al.*, 2013: 136, fig. c. Type loc.: Calapan, island of Mindoro, on small stones, 9 fathoms [16.5 m]; three syntypes in NHM (NHMUK 1968130). *Gena auricula*—E.A. Smith, 1903b: 618. Viader, 1937: 57.

Distribution. Indo-West Pacific to KwaZulu-Natal south coast (Aliwal Shoal); local material 10–100 m (living 50–80 m).

Notes. *Stomatella impertusa* (Burrow, 1815) may be an earlier name for this species (Wilson 1993).

#*Stomatisa* Helbling, 1779. Type species (m.): *Stomatisa phymotis* Helbling, 1779.

***Stomatisa phymotis* Helbling, 1779—new record**

(Figure 6R, S)

Stomatisa phymotis Helbling, 1779: 124, pl. 2, figs 34, 35. Lamarck, 1822a: 211, no. 1. A. Adams, 1850: 34. Martens, 1880: 297. Pilsbry, 1890 in 1890–1891: 30 (synonymy), pl. 54, figs 1–3, 16, 17, 21, 22, 34. Viader, 1937: 6. Moazzo, 1939: 211. Mermod & Binder, 1963: 139, figs 209. Orr Maes, 1967: 105. Cernohorsky, 1972: 43, pl. 8, fig. 14. Drivas & Jay, 1988: 32, pl. 1, fig. 7. Wilson, 1993: 74, pl. 11, fig. 6a–c. Bosch *et al.*, 1995: 37, fig. 59. Sasaki, 1998: 83, figs 55, 56a, b [anatomy]. Jarrett, 2000: 6, fig. 20. Sasaki, 2000: 71, pl. 35, fig. 86. Verbinnen & Dirkx, 2005: 25, fig. 3. Poppe *et al.*, 2006: 102, pl. 49. Poppe & Tagaro, 2008a: 186, 188, pl. 38, fig. 1, pl. 39, figs 7–10. Rusmore-Villaume, 2008: 24. Zuschin *et al.*, 2009: 96, pl. 7, fig. 2. Deuss *et al.*, 2013: 136, fig. b. Type loc.: not given; name perhaps based on Lamarck specimens in MHNG (Mermod & Binder 1963: 139, fig. 209).

Haliotis imperforata Gmelin, 1791: 3690. Type loc.: India; syntype in ZMUC, figured by Cernohorsky (1974).

Stomatisa obscurata Lamarck, 1822a: 212. Mermod & Binder, 1963: 141, fig. 210. Type loc.: unknown; holotype in MHNG, figured by Mermod & Binder (1963: fig. 210).

Stomatisa australis A. Adams, 1850: 34. G.B. Sowerby (II), 1874: pl. 1, sp. 1. Cotton, 1959: 198, fig. 123. Type loc.: Darnley’s Island, Torres Straits, Queensland; three syntypes in NHM (NHMUK 1968121).

Stomatisa phrymotis [sic]—Standen & Leicester, 1906: 269.

Stomatisa imperforata—Cernohorsky, 1974: 152, fig. 12.

Distribution. Indo-West Pacific to northern Zululand (Sodwana Bay); LST and shallow subtidal in Mozambique, local material known only from subtidal reefs, 9–51 m (living 15 m).

[#]*Stomatolina* Iredale, 1937. Type species (o.d.): *Stomatella rufescens* Gray, 1847.

***Stomatolina angulata* (A. Adams, 1850)—new record**

(Figure 8A–C)

Stomatia angulata A. Adams, 1850: 34. A. Adams, 1854b: 842, pl. 175, fig. 57. Pilsbry, 1890 in 1890–1891: 32, pl. 51, figs 29, 30, pl. 54, fig. 6. Type loc.: ‘*in insulis Philippinis*’ [Philippine Islands]; four syntypes in NHM (NHMUK 1968122), one illustrated by Higo *et al.* (2001: 21, fig. G384).

Stomatolina angulata—Sasaki, 2000: 71, pl. 35, fig. 83. Poppe & Tagaro, 2008a: 188, pl. 39, figs 1–3, 5, 6.

Turbinidae sp. 3759—Jay, 2014.

Distribution. Indo-West Pacific to northern Zululand (Leadsman Shoal); local material 25–60 m (none alive).

***Stomatolina cf. calliostoma* (A. Adams, 1850)—new combination—new record**

(Figure 8D–F)

Stomatella calliostoma A. Adams, 1854a: 74. A. Adams, 1854b: 840, pl. 175, figs 42, 43. Pilsbry, 1890 in 1890–1891: 22, pl. 53, figs 80, 81. Type loc.: Ceylon [Sri Lanka]; holotype in NHM (NHMUK 1968202).

Distribution. Southern Mozambique (Bazaruto Archipelago) to northern Zululand (Leven Point); shallow subtidal to 75 m (living to 50 m).

Notes. Shoulder on spire whorls at most weak and not crenulated; spiral cords smooth; inner lip of aperture reflected over and closing umbilicus; shell whitish, variously mottled with spots and blotches in shades of pink and red.

***Stomatolina aff. danblumi* Singer & Mienis, 1999—new record**

(Figure 8J–L)

Stomatolina danblumi Singer & Mienis, 1999: 43. Verbinne & Dirkx, 2005: 25, fig. 4. Type loc.: Red Sea, Gulf of Aqaba, 11 km north of Dahab, in ‘Blue Hole’; holotype in HUJ (40620).

Pseudostomatella (Stomatolina) danblumi—Singer & Mienis, 1999: figs 1–4, 5d–g.

Distribution. Mozambique Channel (Bassas da India) and Northern Zululand (Kosi Bay to Sodwana Bay); beach-drift to 20 m (living 8–18 m).

Notes. This material is not referable to *Stomatolina danblumi*, but bears some resemblance to it, particularly in terms of the fine shell sculpture and the colour pattern. *S. danblumi* has a more depressed shell, shouldered spire whorls and lacks an umbilicus. There is also some resemblance to *S. crenulata* (Preston, 1908) from the Andaman Islands, particularly with regard to the undulating periphery of the spire whorls, but that species has stronger, more uneven spiral sculpture and is also anomphalous.

When describing this species, Singer & Mienis (1999) referred it to the genus *Stomatolina*, but treated this as a subgenus of *Pseudostomatella* Thiele, 1924 in their figure legends, exemplifying the confusion surrounding supraspecific taxa in this subfamily. The relatively finely sculptured shell is indeed more similar to that of *Pseudostomatella* species than it is to the majority of *Stomatolina* species and the present material stands out as being conspicuously smoother than the other South African species. However, it is much less auriform than typical *Pseudostomatella* species, retains an umbilicus and there is no thickened peri-umbilical band.

***Stomatolina cf. rubra* (Lamarck, 1822)—new record**

(Figure 8G–I)

Stomatella rubra Lamarck, 1822a: 210. A. Adams, 1854b: 842, pl. 175, figs 53–56. Pilsbry, 1890 in 1890–1891: 33, pl. 51, figs 26–28, pl. 54, figs 31–33. Type loc.: ‘les mers de l’Inde’ [the seas of India]; two Lamarck specimens in MHNG, one figured by Mermod & Binder (1963: fig. 205).

Stomatolina [sic] rubra—Drivas & Jay, 1988: 32, pl. 1, fig. 8.

Microtis rubra—Wilson, 1993: 73, pl. 11, fig. 5.

Stomatolina rubra—Sasaki, 2000: 71, pl. 35, fig. 81. Poppe *et al.*, 2006: 104, pl. 52, figs 1, 2. Poppe & Tagaro, 2008a: 188, pl. 39, fig. 4.

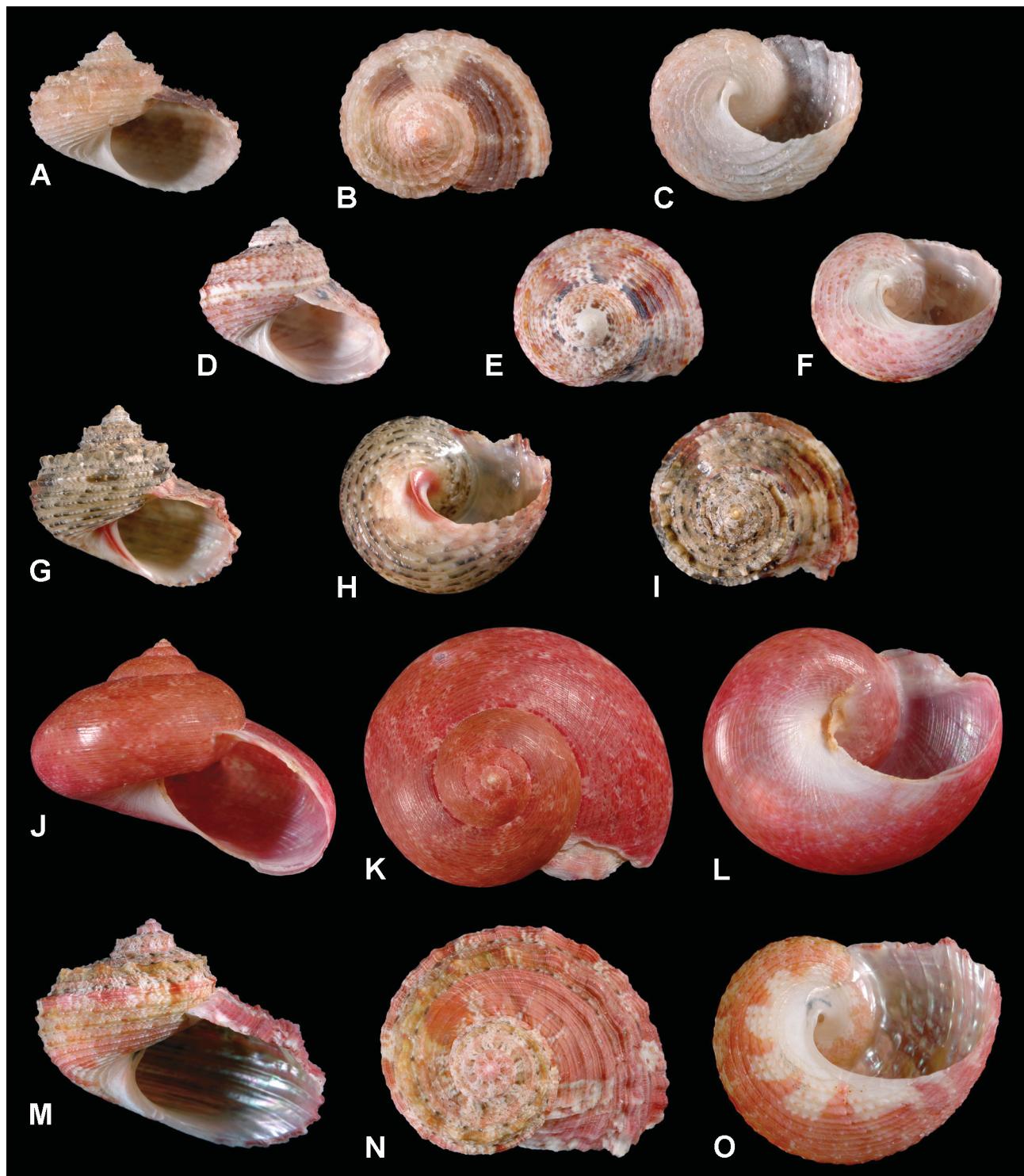


FIGURE 8. Stomatellinae. **A–C**, *Stomatolina angulata* (A. Adams, 1850), off Boteler Point, KwaZulu-Natal, 51 m, diameter 9.6 mm (NMSA S9638). **D–F**, *Stomatolina* cf. *calliostoma* (A. Adams, 1850), NE of Kosi Bay, KwaZulu-Natal, 42–44 m, diameter 8.4 mm (NMSA S5315). **G–I**, *Stomatolina* cf. *rubra* (Lamarck, 1822), between Bhanga Neck and Kosi Bay, KwaZulu-Natal, 12 m, diameter 9.6 mm (NMSA S2465). **J–L**, *Stomatolina* aff. *danblumi* Singer & Mienis, 1999, Sodwana Bay, KwaZulu-Natal, 18–30 m, diameter 13.5 mm (NMSA V7225). **M–O**, *Stomatolina* sp. SE of Kosi Bay, KwaZulu-Natal, 54 m, diameter 13.1 mm (NMSA S7609). [Images to scale.]

Distribution. Northern Mozambique (Conducia Bay) to northern Zululand (Leadsman Shoal); beach-drift to 24 m, primarily on off-shore coral reefs (living 8–20 m).

Notes. Spire whorls with a crisp, crenulate shoulder, particularly the penultimate whorl; crenules weak or

absent on shoulder of body whorl, not strengthening to form nodules; inner lip of aperture and umbilical region with a distinctive crimson-red blotch, inner lip reflected over umbilicus but generally not closing it off completely; shell variously mottled, spotted, blotched and banded in a wide range of colours including brown, green, red, fawn, orange and white, often heavily so. Restricted to relatively shallow water.

***Stomatolina* sp.—new record**

(Figure 8M–O)

Distribution. Northern Zululand, Kosi Bay to Leadsman Shoal; primarily 50–100 m (living 52–54 m).

Notes. A deeper water stomatelline with a crenulate shoulder on spire whorls; body whorl with coarse subsutural folds and two nodular cords, one at shoulder and one just above periphery; intermediary spiral sculpture well developed; inner lip of aperture reflected over and closing umbilicus; shell variously mottled in shades of pink and red, commonly with spiral rows of brownish flecks, umbilical region white.

With its two nodular cords, this species resembles *Microtis* A. Adams, 1850, but the living animal does not have the deeply bifid propodium reported to occur in that genus.

SUBFAMILY: TROCHINAE Rafinesque, 1815

Clanculus Montfort, 1810. Type species (o.d.): *Trochus pharaonius* Linnaeus, 1758.

***Clanculus (Clanculus) atricatena* Tomlin, 1921**

Clanculus puniceus (non Philippi, 1846)—Krauss, 1848: 100 (in part).

Clanculus kraussi [sic] (non Philippi, 1846)—G.B. Sowerby (III), 1894: 373. G.B. Sowerby (III), 1897: 19.

Clanculus atricatena Tomlin, 1921a: 216. Barnard, 1963a: 247, fig. 4a. Kensley, 1973: 36, fig. 70. Richards, 1981: 35, pl. 8, fig. 55. Springsteen, 1981: 4, fig. 5. Kilburn & Rippey, 1982: 40, pl. 8, fig. 6. Steyn & Lussi, 1998: 20, fig. 61. Branch *et al.*, 2010: 174, fig. 76.3. Type loc.: Durban; holotype in NMW (1955.158.961), figured by Herbert (1993: figs 14–17).

Clanculus (Clanculus) atricatena—Herbert, 1993: 249, pl. 1d, figs 6, 14–19.

Distribution. Central Zululand (Mission Rocks) to southern Transkei (Whale Rock area); living LST and shallow subtidal reefs.

***Clanculus (Clanculus) flosculus* (P. Fischer, 1878)**

Trochus flosculus P. Fischer, 1878 in 1875–1880: 300, pl. 96, fig. 1. Type loc.: Seychelles; neotype in MNHN, designated by Herbert (1993: 256, figs 20–22); neotype loc.: Cerf Island, Seychelles.

Trochus (Clanculus) flosculus—P. Fischer, 1878b: 211.

Clanculus flosculus—Herbert, 1991c: 307, figs 3–6. Steyn & Lussi, 1998: 22, fig. 64. Jarrett, 2000: 4, fig. 12. Deuss *et al.*, 2013: 136, fig. h.

Clanculus (Clanculus) flosculus—Herbert, 1993: 253, pl. 1c, figs 7, 20–26 (detailed synonymy and chresonymy).

Distribution. East Africa and islands of the western Indian Ocean, south to central Zululand (Mission Rocks); local material mostly from subtidal reefs, 5–50 m (living 7–22 m).

***Clanculus (Clanculus) natalensis* Herbert, 1993**

Clanculus (Clanculus) natalensis Herbert, 1993: 256, pl. 1e, 10, 27–35. Type loc.: off Dog Point, northern Zululand (27°06.5'S: 32°52.9'E), 70 m; holotype in NMSA (D6485/T888[not T889 as originally given]).

Distribution. Northern Zululand (off Boteler Point) to Pondoland (off Port Grosvenor); 55–215 m (living 65–130 m).

Clanculus (Clanculus) puniceus (Philippi, 1846)

Monodonta punicea Philippi, 1846: 100, no. 13. Type loc.: 'Nova Zealandia ?' [New Zealand], erroneous, emended to Durban by Herbert (1993: 267); type material perhaps in MNHNC, none in ZMB.

Trochus puniceus—Krauss, 1848: 100.

Clanculus puniceus—Barnard, 1963a: 246, fig. 14a. Kensley, 1973: 38, fig. 73. Richards, 1981: 35, pl. 8, fig. 62. Springsteen, 1981: 3, fig. 1. Kilburn & Rippey, 1982: 40, pl. 8, fig. 9. Steyn & Lussi, 1998: 22, fig. 63. Branch *et al.*, 2010: 174, fig. 76.4. Deuss *et al.*, 2013: 136, fig. f.

Clanculus (Clanculus) puniceus—Herbert, 1993: 261, pl. 1b, figs 2, 8, 36–46 (detailed synonymy and chresonymy).

Distribution. East Africa and islands of the western Indian Ocean, extending south to the KwaZulu-Natal south coast (Port Shepstone); living LST and shallow subtidal reefs to 22 m.

Subgenus *Clanculopsis* Monterosato, 1879. Type species (s.d. Sacco 1896): *Trochus cruciatus* Linnaeus, 1758.

Clanculus (Clanculopsis) miniatus (Anton, 1838)

Trochus miniatus Anton, 1838: 58, no. 2079. Krauss, 1848: 99. Type loc.: not given, designated to be off Simonstown, False Bay by Herbert (1993: 268); holotype in MTD (546) (Schniebs 1996).

Clanculus miniatus—Barnard, 1963a: 248, fig. 15a, b. Kensley, 1973: 38, fig. 71. Richards, 1981: 35, pl. 8, fig. 56. Springsteen, 1981: 3, fig. 2. Kilburn & Rippey, 1982: 40, pl. 8, fig. 7. Steyn & Lussi, 1998: 22, fig. 62. Branch *et al.*, 2010: 174, fig. 76.5. Marais, 2011: 60.

Clanculus (Clanculopsis) miniatus—Herbert, 1993: 268, pl. 1f, figs 3, 11, 47–65 (detailed synonymy and chresonymy).

Distribution. Southern Transkei (Dwesa) to False Bay; living shallow subtidal to 38 m.

Notes. This species has an extensive synonymy, the details of which were provided by Herbert (1993). On the premise that Anton's type material was lost, Herbert (1993: 274) designated a neotype for this species (NMSA S9315/T889). Anton's collection, however, is not lost and is housed in the MTD (Schniebs 1996) and it includes the holotype of *Trochus miniatus*. As a result Herbert's neotype designation must be set aside.

Clanculus (Clanculopsis) mixtus E.A. Smith, 1903

Clanculus mixtus E.A. Smith, 1903a: 389, pl. 15, fig. 7. Turton, 1932: 180, no. 1266. Barnard, 1963a: 249. Kensley, 1973: 38, fig. 72. Springsteen, 1981: 3, fig. 3. Richards, 1981: 34, pl. 8, fig. 48. Kilburn & Rippey, 1982: 40, pl. 8, fig. 8. Steyn & Lussi, 1998: 20, fig. 59. Marais, 2011: 61. Type loc.: Port Elizabeth, perhaps erroneous; lectotype and three paralectotypes in NHM (NHMUK 1899.4.14.2175–8), designated by Herbert (1993: 279, figs 66–69).

Clanculus (Clanculopsis) mixtus—Herbert, 1993: 275, pl. 1h, figs 12, 66–71.

Distribution. Central KwaZulu-Natal (Durban) to E. Cape (Port Alfred and perhaps Algoa Bay); mostly beach-drift, no live material known.

Clanculus (Clanculopsis) waltonae G.B. Sowerby (III), 1892

Clanculus waltonae G.B. Sowerby (III), 1892: 45, pl. 2, fig. 45. Bartsch, 1915: 151. Turton, 1932: 180. Barnard, 1963a: 249. Kensley, 1973: 38, fig. 74. Richards, 1981: 34, pl. 8, fig. 52. Springsteen, 1981: 4, fig. 4. Kilburn & Rippey, 1982: 40. Steyn & Lussi, 1998: 20, fig. 60. Marais, 2011: 61. Type loc.: Port Elizabeth; lectotype in NHM (NHMUK 1899.4.14.3594), designated by Herbert (1993: 283, fig. 72).

Clanculus (Clanculopsis) waltonae—Herbert, 1993: 280, pl. 1g, figs 13, 72–79.

Distribution. Central Transkei (off Presley's Bay) to False Bay; beach-drift to 165 m (living 38–87 m).

***Rubritrochus* Beck, 1995.** Type species (o.d.): *Gibbula pulcherrima* A. Adams, 1855.

***Rubritrochus pulcherrimus* (A. Adams, 1855)**

Gibbula pulcherrima A. Adams, 1855: 39. Standen & Leicester, 1906: 270. Jay, 2014. Type loc.: China Seas [Cuming], almost certainly erroneous; two syntypes in NHM (NHMUK 1968185), figured by Beck (1995: pl. 1, figs 1–4)

Trochus fanuloides P. Fischer, 1874: 373. Type loc.: not given; lectotype in MNHN, designated by Beck (1995: pl. 2, figs 7–9).
Gibbula fanuloides—Standen & Leicester, 1906: 270.
Rubritrochus pulcherrimus—Beck, 1995: 69, text fig. 2B, pl. 1, figs 1–8, pl. 2, figs 1–9, pl. 4, figs 2–6, pl. 5, figs 1–2 (detailed chresonymy). Bosch *et al.*, 1995: 33, fig. 32.

Distribution. Indian Ocean, from the Andaman Islands and Persian Gulf, to the south-western region as far south as northern Zululand (off Gipsy Hill); 34–110 m (living 34–70 m).

Trochus Linnaeus, 1758. Type species (s.d. Iredale 1912): *Trochus maculatus* Linnaeus, 1758.

***Trochus (Trochus) nigropunctatus* Reeve, 1861**

Trochus hanleyanus (non Reeve, 1862)—Krauss, 1848: 100.

Trochus nigropunctatus Reeve, 1861 in 1861–62: pl. 13, sp. 71. Barnard, 1963a: 253, fig. 14b. Kilburn, 1970: 47 (in part, includes *T. textilis* Reeve, 1861). Kensley, 1973: 44, fig. 109. Richards, 1981: 36, pl. 9, fig. 70. Kilburn & Rippey, 1982: 42, pl. 9, fig. 6. Steyn & Lussi, 1998: 24, fig. 80. Branch *et al.*, 2010: 176, fig. 77.1. Type loc.: Natal, restricted to Durban by Kilburn (1970); lectotype in NHM (NHMUK 1968622), designated by Herbert (1993: 290, figs 80–83).

Trochus (Trochus) nigropunctatus—Herbert, 1993: 284, figs 4, 80–89 (detailed synonymy and chresonymy).

Distribution. South-eastern Africa, from Mozambique (Bazaruto Archipelago) south to E. Cape (Dwesa and perhaps Port Alfred); intertidal.

Subgenus *Infundibulops* Pilsbry, 1889. Type species (o.d.): *Trochus erithreus* Brocchi, 1821.

***Trochus (Infundibulops) cariniferus* Reeve, 1842**

Trochus cariniferus Reeve, 1842b: 165 [Beck mss], pl. 218, fig. 8. Steyn & Lussi, 1998: 24, fig. 81. Deuss *et al.*, 2013: 136, fig. e. Type loc.: unknown, designated Mozambique Island by Herbert (1993); neotype in NHM (NHMUK 1844.6.3.448), designated by Herbert (1993: 297, figs 94–97) [one of four ‘probable syntypes’ in NHM, without provenance].

Trochus (Infundibulops) cariniferus—Herbert, 1993: 292, figs 5, 94–108 (detailed synonymy and chresonymy).

Distribution. Western Indian Ocean south to central KwaZulu-Natal (Isipingo); low intertidal and shallow subtidal reefs to 20 m.

SUBFAMILY: UMBONIINAE H. Adams & A. Adams, 1854

Ethalia H. Adams & A. Adams, 1854. Type species (s.d. Pilsbry 1889): *Rotella guamensis* Quoy & Gaimard, 1834.

***Ethalia bysma* Herbert, 1992**

Ethalia bysma Herbert, 1992a: 394, figs 4e, 5–8, map 1. Type loc.: off Boteler Point, northern Zululand (27°0.5'S: 32°54.7'E), 50 m; holotype in NMSA (E1685/T67).

Distribution. South-eastern Africa from central Mozambique (Bight of Sofala) to northern Zululand (off Gipsy Hill); 50–110 m (living 50–70 m).

***Ethalia carneolata* Melvill, 1897**

Ethalia carneolata Melvill, 1897: 19, pl. 7, figs 24, 26. Herbert, 1992a: 396 (synonymy and chresonymy), figs 3, 4a, b, 9–22, map 2. Bosch *et al.*, 1995: 35, fig. 42. Type loc.: ‘Bass Island’ [somewhere in the Persian Gulf/Arabian Sea/Gulf of Oman], 10 fathoms [18.3 m]; syntype in NHM (NHMUK 1897.7.30.107), figured by Herbert (1992a: figs 9–11).

Ethalia striolata (non A. Adams, 1855)—Kilburn, 1977: 176.

Distribution. Western Indian Ocean, from the Persian Gulf and Arabian Sea south to Madagascar, the Mascarene Islands and northern Zululand (off Gipsy Hill); beach-drift to 72 m (living 6–58 m).

***Ethalia electra* Herbert, 1992**

Ethalia electra Herbert, 1992a: 402, figs 4f, 23–26. Type loc.: off Kosi River mouth, Zululand (26°54.6'S: 32°56.6'E), 75 m; holotype in NMSA (D9006/T246).

Distribution. Known only from northern Zululand (off Kosi Bay to Rocktail Bay); 60–75 m (no data for living specimens).

***Ethalia gilchristae* Herbert, 1992**

Ethalia gilchristae Herbert, 1992a: 404, figs 1, 2, 4c, 27–34, map 3. Type loc.: SE of Kosi River mouth, Zululand (26°55.3'S: 32°55.4'E), 50 m; holotype in NMSA (E1684/T29).

Distribution. South-western Indian Ocean, from the Farquhar Island group and Réunion south to central Zululand (off Cape Vidal); local material 41–100 m (living 41–70 m).

***Ethminolia* Iredale, 1924.** Type species (m.): *Ethminolia probabilis* Iredale, 1924.

***Ethminolia durbanensis* (Kilburn, 1977)**

Solariella durbanensis Kilburn, 1977: 177, figs 6–8.

Ethminolia durbanensis—Herbert, 1992a: 413, figs 36–39, map 4. Type loc.: Durban Bay in shallow dredgings on sand; holotype in NMSA (A5040/T2045).

Distribution. South-western Indian Ocean, from northern Mozambique (off Nacala) and north-western Madagascar (off Cap St-André) to the KwaZulu-Natal south coast (off Phumula); living in shallow lagoonal habitats and on near-shore reefs.

Notes. The population at the type locality, Durban Bay, is now probably extinct.

***Ethminolia nektonica* (Okutani, 1961)**

Solariella nektonica Okutani, 1961: 304, figs 1–8. Type loc.: off Kushikino, Kyushu, (31°35.3'N: 130°06.5'E), Japan, 89 m; holotype in NSMT (Mo 69540), figured by Higo *et al.* (2001: 24, fig. G473).

Ethminolia nektonica—Herbert, 1992a: 418 (further references), figs 51–54, map 6. Sasaki, 2000: 81, pl. 40, fig. 129. Poppe *et al.*, 2006: 108, pl. 56, figs 1, 3, 4. Poppe & Tagaro, 2008b: 194, pl. 42, figs 1, 2.

Distribution. Indo-West Pacific to the Mascarene Islands and central Zululand (off Mission Rocks); local material 60–250 m (no data for living specimens).

***Ethminolia sculpta* (G.B. Sowerby (III), 1897)**

Solariella sculpta G.B. Sowerby (III), 1897: 29. Type loc.: Durban; lectotype in NMSA (1233/T523), designated by Kilburn (1972: 396), figured by Herbert (1992a: figs 55–57).

Minolia sculpta—Kilburn, 1972: 396, figs 3, 4.

Ethminolia sculpta—Herbert, 1992a: 420, figs 55–59, map 7.

Distribution. South-western Indian Ocean, from central Mozambique (Beira) to southern Transkei (off Nthlonyane River); beach-drift to 198 m (living shallow subtidal to 32 m).

***Ethminolia stearnsii* (Pilsbry, 1895)**

Minolia stearnsii Pilsbry, 1895: 98. Type loc.: Nemoto, Boshiu, Japan; lectotype in ANSP (70786), designated by Herbert (1992a: 426, figs 60–62).

Ethminolia stearnsii—Herbert, 1992a: 423 (chresonymy), figs 35, 60–67, map 8. Sasaki, 2000: 81, pl. 40, fig. 128. Higo *et al.*, 2001: 24, fig. G472.

Sericominolia stearnsii—Poppe *et al.*, 2006: 112, pl. 59, fig. 1. Poppe & Tagaro, 2008b: 202, pl. 46, fig. 1.

Distribution. Indo-West Pacific to the Mascarene Islands and central Zululand (off Leven Point); local material 8–84 m (living 10–65 m).

Inkaba Herbert, 1992. Type species (o.d.): *Inkaba tonga* Herbert, 1992.

***Inkaba tonga* Herbert, 1992**

Inkaba tonga Herbert, 1992a: 428, figs 68–76, map 9. Type loc.: SE of Kosi River mouth, northern Zululand (26°56.9'S: 32°54.6'E), 50 m; holotype in NMSA (E1687/T39).

Distribution. Recorded only off northern and central Zululand (Kosi Bay to Leven Point), but probably extending into southern Mozambique: 40–100 m (living specimens the same).

Pseudominolia Herbert, 1992. Type species (o.d.): *Solariella splendens* G.B. Sowerby (III), 1897.

***Pseudominolia articulata* (Gould, 1861)**

Margarita articulata Gould, 1861: 15. G.B. Sowerby (III), 1897: 18. Type loc.: Simon's Bay, Cape of Good Hope [Simonstown, False Bay]; holotype in USNM (121), figured by Bartsch (1915) and Herbert (1992a).

Gibbula articulata—Bartsch, 1915: 155, pl. 25, figs 4–6 (holotype). Turton, 1932: 184, no. 1288.

Solariella algoensis Thiele, 1925: 16[50], pl. 1[13], fig. 21. Type loc.: Valdivia St'n 101 (33°50.5'S: 25°48.8'E), Algoa Bay (no depth given); syntypes in ZMB.

Minolia bleekii Thiele, 1925: 19[53], pl. 1[13], fig. 32. Type loc.: 'Cap' [Cape]; holotype in ZMB.

Minolia articulata—Barnard, 1963a: 233. Kensley, 1973: 40, fig. 85 [not 86].

Pseudominolia articulata—Herbert, 1992a: 435 (synonymy and chresonymy), figs 78, 80–90, map 10.

Distribution. Southern Mozambique (off Bazaruto) to W. Cape (False Bay): beach-drift to 210 m (living 5–140 m).

***Pseudominolia splendens* (G.B. Sowerby (III), 1897)**

Solariella splendens G.B. Sowerby (III), 1897: 18, pl. 6, fig. 21. Type loc.: Natal; lectotype and two paralectotypes in NHM (NHMUK 1899.4.14.3688 and NHMUK 1899.4.14.3689–3690 respectively), designated by Herbert (1992a: 447, figs 91–93).

Minolia variegata Odhner, 1919: 32, pl. 2, figs 26–28. Type loc.: Tamatave, Madagascar, 20–25 m; lectotype in SMNH (1537, paralectotypes 1066), designated by Herbert (1992a: 447, figs 94).

Minolia splendens—Thiele, 1925: 19[53]. Barnard, 1963a: 233, fig. 10a. Kensley, 1973: 40, fig. 88. Kilburn & Rippey, 1982: 41, pl. 8, fig. 18.

Pseudominolia splendens—Herbert, 1992a: 440 (synonymy and chresonymy), figs 77, 79, 91–104, map 11. Steyn & Lussi, 1998: 22, fig. 71.

Distribution. South-western Indian Ocean, from Madagascar and southern Mozambique to the KwaZulu-Natal south coast (off Margate); beach-drift to 145 m (living 18–50 m).

FAMILY: TURBINIDAE Rafinesque, 1815

SUBFAMILY: TURBININAE Rafinesque, 1815

Bolma Risso, 1926. Type species (m.): *Turbo rugosus* Linnaeus, 1767.

***Bolma andersoni* (E.A. Smith, 1902)**

Astralium (Bolma) andersoni E.A. Smith, 1902: 248, pl. 4, fig. 7. Type loc.: off Durban, *ex pisce*; holotype originally in collection of Alexander Anderson, current whereabouts unknown.

Astralium andersoni—E.A. Smith, 1903a: 388, 402. G.B. Sowerby (III), 1903: 230, pl. 5, fig. 5. E.A. Smith, 1906: 52.

Astraea andersoni—Barnard, 1963a: 219. Kensley, 1973: 48, fig. 127.

Bolma andersoni—Beu & Ponder, 1979: 10, fig. 1j–n. Kilburn & Rippey, 1982: 48, pl. 1, fig. 1. Bozzetti, 1992: 28. Steyn & Lussi, 1998: 26, fig. 89. Steyn & Lussi, 2005: 13, no. 15.

Distribution. Northern Zululand (off Gipsy Hill) to E. Cape (off East London); 20–70 m (living 30–40 m).

***Bolma bathyraphis* (E.A. Smith, 1899)**

Astralium bathyraphis E.A. Smith, 1899a: 247. E.A. Smith, 1904b: 4. Annandale & Stewart, 1909: pl. 12, figs 4, 4a–c. Type loc.: Investigator St'n 218, N. Maldive Atoll, in 210 fathoms [384 m]; holotype in ZSIC (M579).

Astralium (Cyclocantha) gilchristi G.B. Sowerby (III), 1903: 221, pl. 5, fig. 6. Type loc.: O'Neil Peak (Natal), bearing NW ¼ W; distant 9½ miles: depth, 90 fathoms [165 m]; figured syntype in SAMC (A5219) another syntype in NHM (NHMUK 1903.7.27.72), Salvador pers. comm. (iii/2015).

Astralium gilchristi—E.A. Smith, 1906: 53.

Astrea [sic] gilchristi—Barnard, 1963a: 221, fig. 7c.

Astraea gilchristi—Kensley, 1973: 48, fig. 128.

Bolma guttata bathyraphis—Beu & Ponder, 1979: 23, figs 7a–g, 8a–m, 19c, d.

Bolma guttata gilchristi—Bozzetti, 1992: 28.

Bolma bathyraphis—Steyn & Lussi, 2005: 14, no. 16. Jay, 2014.

Distribution. Northern and western Indian Ocean, south to KwaZulu-Natal south coast (off Park Rynie); 100–705 m (no data for living specimens).

***Bolma henica* (Watson, 1879)**

Turbo (Calcar) henicus Watson, 1879: 713. Watson, 1886: 130, pl. 6, fig. 11. Type loc.: Challenger St'n 173 (19°10'S: 179°40'E, later given as 19°9'35"S: 179°41'50"E), off Matuku, Fiji, 315 fathoms [576 m]; lectotype in NHM (NHMUK 1887.2.9.453), designated by Beu & Ponder (1979: 28).

Calcar henicum—Martens, 1904: 46. Thiele, 1904: 163, pl. 8[3], fig. 43.

Astralium henicus—E.A. Smith, 1906: 53.

Pseudastralium henicus—Cernohorsky, 1978: 40, pl. 10, fig. 7.

Bolma henica—Beu & Ponder, 1979: 27, figs 10a–h, 19a, b (synonymy and further references). Kreipl & Alf, 2008: 246, pl. 68, fig. 10.

Distribution. Indo-West Pacific with one record from the Agulhas Bank (off Cape Agulhas), 102 m (Martens 1904).

***Bolma massieri* Bozzetti, 1992**

Bolma cf. tayloriana—Beu & Ponder, 1979: 37, fig. 14i–k.

Bolma massieri Bozzetti, 1992: 28, figs 1–4. Steyn & Lussi, 2005: 14, no. 17. Type loc.: off Durban, 110–150 m; holotype in NMSA (S7885/T848).

Distribution. Central KwaZulu-Natal (off Durban) to E. Cape (Algoa Bay), perhaps also in southern Mozambique; 60–494 m (living 90–110 m).

Notes. May possibly be an eastern subspecies of *Bolma tayloriana* as there seems to be some intergrading of characters on the eastern Agulhas Bank.

***Bolma tayloriana* (E.A. Smith, 1880)**

Turbo (Pomaulax?) tayloriana E.A. Smith, 1880: 483, pl. 48, fig. 9. Type loc.: no locality given; holotype in NHM (NHMUK 1879.2.26.229).

Turbo (Pachypoma) taylorianus—G.B. Sowerby (III), 1894: 372.

Pachypoma taylorianum—G.B. Sowerby (III), 1897: 18.

Astraea tayloriana—Bartsch, 1915: 146. Barnard, 1963a: 217, figs 5d, e (radula), 7a, b. Kensley, 1973: 48, fig. 129.

Astralium taylorianum—Odhner, 1923: 6. Turton, 1932: 176. Kennelly, 1964: 55, pl. 6, fig. 33.

Bolma tayloriana—Beu & Ponder, 1979: 36, fig. 14a–h. Kilburn & Rippey, 1982: 48. Bozzetti, 1992: 28. Steyn & Lussi, 1998: 28, fig. 90. Steyn & Lussi, 2005: 14, no. 18.

Distribution. Agulhas Bank, from East London west to Cape Columbine; 23–146 m (living 23–91 m).

Lunella Röding, 1798. Type species (s.d. Powell 1937): *Turbo versicolor* Gmelin, 1791 [=*Turbo cinereus* Born, 1778] (see discussion in Williams *et al.* 2012).

Lunella coronata (Gmelin, 1791)

Turbo coronatus Gmelin, 1791: 3594, no. 21. Krauss, 1848: 101. Martens, 1879: 735. Martens, 1880: 294. Lamy, 1909: 330. Odhner, 1919: 14. Paes da Franca, 1960b: 56, pl. 2, fig. 3. Barnard, 1963a: 211. Kennelly, 1964: 55, pl. 5, fig. 31. Day, 1969: 159. Kensley, 1973: 50, fig. 135. Richards, 1981: 37, pl. 10, fig. 73. Kilburn & Rippey, 1982: 47, pl. 9, fig. 11, text fig. 12 (operculum). Drivas & Jay, 1988: 34, pl. 2, fig. 9. Steyn & Lussi, 1998: 26, fig. 82. Branch *et al.*, 2010: 178, fig. 78.2. Type loc.: ‘in streto Malaccensi’ [Strait of Malacca], evidently erroneous (Williams *et al.* 2012); holotype in ZMUC (Cernohorsky 1974: fig. 21).

Turbo (Lunella) coronatus—Moura, 1966: 26, pl. 1, fig. 3. Moura, 1968: 34, pl. 4, figs 4, 4a. Moura, 1969: 17, pl. 7, fig. 3 a, b. Moura, 1970: 65, pl. 2, fig. 5. Moura, 1972: 22, pl. 2, fig. 9a–c. Cernohorsky, 1974: 159, fig. 21 (holotype). Moura, 1976: 47, 51, pl. 2, figs 3a, b. Alf & Kreipl, 2003: 54, pls. 87, 88.

Lunella coronata—Williams, 2007: 577. Williams *et al.*, 2011. Williams *et al.*, 2012. Deuss *et al.*, 2013: 138, fig. e.

Distribution. Western Indian Ocean; from the Persian Gulf, Arabian Sea and western Indian Ocean islands south to E. Cape (East London); intertidal.

Notes. Williams (2007) has shown that *Lunella* warrants recognition as genus distinct from *Turbo* and subsequent studies (Williams *et al.* 2011, 2012) have shown that *Lunella coronata* represents a complex of cryptic species requiring further study.

Turbo Linnaeus, 1758. Type species (s.d. Montfort 1810): *Turbo petholatus* Linnaeus, 1758.

Subgenus Euninella Cotton, 1939. Type species (m.): *Turbo gruneri* Philippi, 1846.

Turbo (Euninella) laetus Philippi, 1849

Turbo laetus Philippi, 1849 (January): 100. Philippi, 1849 (month unknown) in 1842–1852: 71, pl. 17, fig. 1 [plate printed without legend in 1845]. Steyn & Lussi, 1998: 26, fig. 87. Type loc.: not given in original, but given as east coast of Africa by Philippi (1849 in 1842–1852); the figured specimen from A.B. Meyer may once have been in the Zoology Museum of Hamburg University, the dry shell collections of which were destroyed in WWII (Hausdorf, pers. comm. vii/2015).

Turbo splendidulus (non O.G. Costa, 1829) G.B. Sowerby (III), 1886b: 229, pl. 14[506], figs 180, 181. E.A. Smith, 1903a: 387. Barnard, 1963a: 211. Kensley, 1973: 50, fig. 140. Moura, 1976: 47, 52, pl. 2, figs 4a, b. Type loc.: not given; holotype in NHM (NHMUK 1886.4.2.1), Salvador pers. comm. (viii/2015).

Turbo (Euninella) laetus—Kilburn, 1972: 398. Alf & Kreipl, 2003: 45, pl. 65. Williams, 2007: 578.

Not *Turbo laetus* Montrouzier, 1863 [=*Collonia granulosa* Pease, 1868 (Herbert 1996)].

Distribution. East Africa and Madagascar south to the KwaZulu-Natal–E. Cape border (Mzamba); living LST and shallow subtidal reefs to 20 m (mostly on off-shore reefs in South Africa).

Subgenus Lunatica Röding, 1798. Type species (s.d. Herrmannsen 1847): *Turbo olearius* Linnaeus, 1758 [=*Turbo marmoratus* Linnaeus, 1758].

Turbo (Lunatica) imperialis Gmelin, 1791—new record

Turbo imperialis Gmelin, 1791: 3594. Martens, 1880: 293. Cernohorsky, 1974: 154, fig. 15 (holotype). Cernohorsky, 1978: 38, pl. 10, fig. 1. Type loc.: ‘in Sina’ [China]; holotype in ZMUC (Cernohorsky 1974).

Turbo imperialis var. *regenfussi*—Odhner, 1919: 42.

Turbo (Dinassovica) imperialis—Alf & Kreipl, 2003: 48, pls. 70, 71.

Distribution. Indian Ocean; from Western Australia to central East Africa, south to central Zululand (Cape Vidal area); local material living on shallow subtidal reefs to 20 m.

Notes. The relationship of this taxon to *Turbo regenfussi* Deshayes, 1843 requires further investigation.

Subgenus *Marmorostoma* Swainson, 1829. Type species (o.d.): *Turbo chrysostomus* Linnaeus, 1758.

***Turbo (Marmorostoma) argyrostomus* Linnaeus, 1758**

Turbo argyrostomus Linnaeus, 1758: 764. Martens, 1880: 293. Odhner, 1919: 32. Dautzenberg, 1929: 530. Barnard, 1963a: 211. Kensley, 1973: 48, fig. 131. Sheppard, 1984: 46. Drivas & Jay, 1988: 34, pl. 2, fig. 10. Steyn & Lussi, 1998: 26, fig. 86. Jarrett, 2000: 7, fig. 23. Steyn & Lussi, 2005: 15, no. 19. Deuss *et al.*, 2013: 140, fig. b. Type loc.: 'in *M. Indico*' [Indian Ocean]; syntypes in LSL and UUZM
Turbo intercostalis (non Menke, 1846)—G.B. Sowerby (III), 1897: 17.
Turbo argyrostoma—E.A. Smith, 1910: 205.
Turbo (Marmorostoma) argyrostomus—Adam & Leloup, 1938: 33.
Turbo argyrostomum—Paes da Franca, 1960b: 56, pl. 2, fig. 2. Moura, 1966: 26, pl. 1, fig. 4.
Turbo (Marmorostoma) argyrostomum—Moura, 1972: 22, pl. 2, fig. 8.
Turbo (Marmorostoma) argyrostoma argyrostoma—Alf & Kreipl, 2003: 24, pls. 13–17.
Turbo argyrostomus argyrostomus—Kreipl & Alf, 2008: 256, pl. 73, fig. 2.

Not *Turbo argyrostomum*—Moura, 1969: 17, pl. 7, fig. 2 [= *Priotrochus obscurus* (Wood, 1828)].

Distribution. Indo-West Pacific south to central Zululand (Leven Point) and formerly also in Durban Bay; local material living primarily on shallow subtidal reefs to 20 m.

***Turbo (Marmorostoma) radiatus* Gmelin, 1791**

Turbo radiatus Gmelin, 1791: 3594, no. 19. Type loc.: 'in *mare rubro*' [Red Sea]; location of type material unknown.
Turbo spinosus Gmelin, 1791: 3594, no. 24. Type loc.: 'in *India*'; location of type material unknown.
Turbo chrysostomus (non Linnaeus, 1758)—E.A. Smith, 1903a: 387. Barnard, 1963a: 211. Steyn & Lussi, 2005: 15, no. 20.
Turbo (Marmorostoma) radiatus—Alf & Kreipl, 2003: 37, pls. 44–46.
Turbo (Marmorostoma) radiatus forma spinosus—Alf & Kreipl, 2003: 37, pl. 46.

Distribution. Primarily a western Indian Ocean species, extending south to central Zululand (Leven Point) and formerly also in Durban Bay; local material living primarily on shallow subtidal reefs to 25 m.

Notes. Alf & Kreipl (2003) concluded that the East African *Turbo spinosus* intergrades with typical *T. radiatus* from the Red Sea and regarded *T. spinosus* merely as a less strongly sculptured form of *T. radiatus*. Unlike *Turbo chrysostomus* Linnaeus, 1758, material from south-eastern Africa lacks golden yellow coloration inside the aperture and the sculpture of the outer labral surface of the operculum is primarily granular, with at most traces of radial striae. Thus there can be little doubt that E.A. Smith's record of *T. chrysostomus* from Durban (E.A. Smith 1903a) was a misidentification.

***Turbo (?Marmorostoma) tursicus* Reeve, 1848—new record**

(Figure 6O–Q)

Turbo tursicus Reeve, 1848: pl. 12, fig. 60. Kreipl & Alf, 2008: 258, pl. 74, fig. 4. Type loc.: Philippine Islands; two syntypes in NHM (NHMUK 1968717), Salvador pers. comm. (xi/2014).
Turbo turcicus [sic]—Reeve, 1849: 228.
Turbo somnueki Patamakanthin, 2001: 193, pls. 1, 2. Type loc.: between Phromthep Cape, Phuket Island and Bon Island, Thailand, Andaman Sea; holotype in PMBC (15759).
Turbo (Marmorostoma ?) tursicus—Alf & Kreipl, 2003: 41, pl. 54.
Turbo (Marmorostoma) sp. 4—Alf & Kreipl, 2003: 42, pl. 56, figs 2–4.
Turbinidae sp. 3399—Jay, 2014.
Turbinidae sp. 3762—Jay, 2014.

Distribution. Indo-West Pacific south to central Zululand (off St Lucia); local material 50–110 m (living 50–80 m).

Notes. Western Indian Ocean specimens are smaller than those from the central Indo-West Pacific, and they have scales rather than hollow spines on the two peripheral cords.

Subgenus *Sarmaticus* Gray, 1847. Type species (o.d.): *Turbo sarmaticus* Linnaeus, 1758.

***Turbo (Sarmaticus) cidaris cidaris* Gmelin, 1791**

Turbo cidaris Gmelin, 1791: 3596, no. 34. Krauss, 1848: 101. Martens, 1874: 130, no. 101. Pilsbry, 1888: 214, pl. 50, figs. 62, 63, pl. 56, fig. 81. Odhner, 1923: 9. Turton, 1932: 175. Nicklès, 1950: 45, fig. 30. Barnard, 1963a: 212, figs 4 a–d, 5b. Kennelly, 1964: 55, pl. 5, fig. 29. Day, 1969: 159. Kensley, 1973: 50, fig. 134. Steyn & Lussi, 1998: 26, fig. 84. Branch *et al.*, 2010: 178, fig. 78.1. Marais, 2011: 64. Type loc.: ‘*in India et Sina*’ [in India and China], erroneous, emended to Table Bay by Kilburn (1974). Kilburn (1974) designated figs 1840 and 1841 of Chemnitz (1781) as the lectotype figures. *Liotia fulgens* Gould, 1859: 142. Johnson, 1964: 79. Type loc.: St Simon’s Bay, Cape of Good Hope [Simonstown, False Bay]; holotype in USNM (24151), figured by Bartsch (1915). *Ilaira fulgens*—Bartsch, 1915: 166, pl. 29, figs 4–6. *Turbo cidaris cidaris*—Kilburn, 1974: 192, figs 3A, 4A (additional synonyms and references). Richards, 1981: 37, pl. 10, fig. 75. Kilburn & Rippey, 1982: 47, pl. 9, fig. 10a. *Turbo (Sarmaticus) cidaris cidaris*—Alf & Kreipl, 2003: 54, pl. 81, pl. 82, figs 1, 2.

Distribution. E. Cape (Port Elizabeth) to Atlantic Cape coast (Table Bay and Robben Island); intertidal and shallow subtidal. Intergrades with *T. cidaris natalensis* on the southern Cape coast (Cape Agulhas to Port Alfred). A record from Angola (Odhner 1923; Nicklès 1950) seems improbable and requires confirmation.

***Turbo (Sarmaticus) cidaris natalensis* Krauss, 1848**

Turbo natalensis Krauss, 1848: 101, pl. 6, fig. 1. Krauss, 1852: 34. Turton, 1932: 175. Barnard, 1963a: 213 (in part, includes *Bothropoma ponsonbyi* (G.B. Sowerby (III), 1897)). Kennelly, 1964: 55, pl. 5, fig. 30. Day, 1969: 159. Kensley, 1973: 50, fig. 137. Type loc.: ‘*In litore natalensi*’ [on the shore of Natal], restricted to Durban by Kilburn (1974); six syntypes in SMNH (Herbert & Warén 1998). *Turbo natalensis* Reeve, 1848: pl. 1, fig. 1a, b. Reeve, 1849: 227. Type loc.: Port Natal [Durban]; 4 syntypes in NHM (NHMUK 1968144), Salvador pers. comm. (viii/2015). *Turbo natalensis* var. *unicolor* Turton, 1932: 176. Type loc.: Port Alfred, E. Cape; syntypes in OXUM. *Turbo cidaris natalensis*—Kilburn, 1974: 193, fig. 3B, 4B. Richards, 1981: 37, pl. 10, fig. 76. Kilburn & Rippey, 1982: 48, pl. 9, fig. 10c, text fig. 13 (operculum). Steyn & Lussi, 1998: 26, fig. 85. *Turbo (Sarmaticus) cidaris natalensis*—Alf & Kreipl, 2003: 54, pl. 82, figs 3–7.

Distribution. Central KwaZulu-Natal (Tongaat) to E. Cape (Jeffreys Bay); intertidal and shallow subtidal.

Notes. Krauss and Reeve independently described this species as new under the name *Turbo natalensis* in January 1848. Krauss (1852) claimed priority for his description believing Reeve’s *Turbo natalensis* to date from Reeve (1849) or from March 1848 when he read his 1849 paper before the Zoological Society of London. However, Reeve was prone to publishing his species descriptions in more than one publication and he had earlier published a description of *Turbo natalensis* in the *Conchologica Iconica* dated January 1848. Barnard (1963a), aware of this problem (and acting effectively as first reviser), credited the description to Krauss.

***Turbo (Sarmaticus) sarmaticus* Linnaeus, 1758**

Turbo sarmaticus Linnaeus, 1758: 763. Krauss, 1848: 101. Martens, 1874: 130, no. 101. Troschel, 1878: pl. 19, fig. 14 (radula). Turton, 1932: 175. Barnard, 1963a: 214, figs 4a, b, e, f (juveniles), 5c (radula). Kennelly, 1964: 55, pl. 6, fig. 32. Day, 1969: 159. Kensley, 1973: 50, fig. 139. Richards, 1981: 37, pl. 10, fig. 74. Kilburn & Rippey, 1982: 47, pl. 9, fig. 12. Steyn & Lussi, 1998: 26, fig. 83. Branch *et al.*, 2010: 178, fig. 78.3. Marais, 2011: 64. Type loc.: no locality given; type material evidently lost, none in LSL or UUZM. *Turbo (Sarmaticus) sarmaticus*—Alf & Kreipl, 2003: 55, pls. 83, 84.

Distribution. Pondoland (Mkambati) to W. Cape (Saldanha Bay); intertidal and shallow subtidal.

TROCHOIDEA unassigned

Tectus Montfort, 1810. Type species (o.d.): *Tectus pagodalis* Montfort, 1810 [=*Trochus mauritianus* Gmelin, 1791].

Williams (2012) has shown that *Tectus* s.l. is related to *Cittarium* and belongs to a weakly supported trochoidean clade that is best treated as an un-named family-level entity until further data become available. This clade is clearly distinct from the Trochidae, to which *Tectus* has traditionally been referred.

***Tectus mauritianus* (Gmelin, 1791)—new record**

Trochus mauritianus Gmelin, 1791: 3582. Odhner, 1919: 32. Viader, 1937: 55. Braga, 1952: 33, pl. 6, fig. 7. Jarrett, 2000: 5, fig. 14. Type loc.: ‘frequens ad insulas Barboniae [sic] et S. Mauriti’ [frequent at the islands of Bourbon (Réunion) and Mauritius]; location of type material unknown.

Trochus (Pyramis) Mauritianus [sic]—Martens, 1880: 295.

Trochus (Tectus) mauritianus—Pilsbry, 1889 in 1889–1890: 23, pl. 2, figs 11, 12 and pl. 4, figs 24, 25, 27. Lamy, 1909: 331. Dautzenberg, 1929: 534. Bisacchi, 1931: 177. Moura, 1972: 21, pl. 2, fig. 5.

Tectus (Tectus) mauritianus—Moura, 1966: 25, pl. 1, fig. 1. Moura, 1969: 16. Deuss *et al.*, 2013: 138, fig. b.

Tectus mauritianus—Drivas & Jay, 1988: 34, pl. 2, fig. 4.

Distribution. South-western Indian Ocean, from Tanzania, the Seychelles, Comoros, Mascarene Islands, Madagascar and Mozambique; locally recorded only from the Durban area, but probably occurring only as occasional waifs from populations to the north; living LST and shallow subtidal reefs.

Subgenus *Cardinalia* Gray, 1842. Type species (s.d. Wenz 1938): *Trochus virgatus* Gmelin, 1791.

***Tectus (Cardinalia) virgatus* (Gmelin, 1791)**

Trochus virgatus Gmelin, 1791: 3580, no. 83. Viader, 1937: 55. Paes da Franca, 1960b: 56, pl. 2, fig. 1. Kensley, 1973: 34, fig. 53. Sheppard, 1984: 46. Jarrett, 2000: 6, fig. 15. Type loc.: ‘In India’; location of type material unknown.

Trochus (Cardinalia) virgatus—E.A. Smith, 1903a: 388. Lamy, 1909: 330. Barnard, 1963a: 253. Moura, 1972: 21, pl. 2, fig. 6. Zuschin *et al.*, 2009: 102, pl. 12, figs 1–3.

Tectus (Cardinalia) virgatus—Moura, 1966: 26, pl. 1, fig. 2. Moura, 1969: 16. Herbert, 1993: 299, figs 109–115 (detailed chresomy). Deuss *et al.*, 2013: 138, fig. a.

Distribution. Red Sea, East Africa and western Indian Ocean islands south to central Zululand (Leven Point) and formerly also in Durban Bay; local specimens living on shallow subtidal reefs to 20 m.

Notes. Records from Indonesia and the Philippines seem unlikely (Herbert 1993).

SUPERFAMILY: ANGARIOIDEA Gray, 1857

FAMILY: ARENEIDAE McLean, 2012

Cynisca Kilburn, 1970. Replacement name for *Cynisca* H. Adams & A. Adams, 1854, *non* Gray, 1844. Type species (m.): *Cynisca granulata* A. Adams, 1854 [= *Delphinula granulosa* Krauss, 1848 (*non* Grateloup, 1828) = *Delphinula dunkeri* Philippi, 1853].

Notes. The taxonomy of the South African species belonging to the Areneidae is confused as a result of the lumping of species under a broadly interpreted *Cynisca dunkeri*. They are currently being revised by Bruce Marshall, based on a manuscript by James H. McLean, and substantial changes are to be expected.

***Cynisca bicarinata* (Martens, 1902)—new combination**

Collonia bicarinata Martens, 1902: 241. Type loc.: Agulhas Bank, 500 m; later given as Valdivia St'n 103 (35°10'S, 23°02'E) (Martens 1904); two syntypes in ZMB, one male and one female (female is figured specimen).

Leptothyra bicarinata—E.A. Smith, 1903a: 388.

Liotia bicarinata—Martens, 1904: 46, pl. 5, fig. 4. E.A. Smith, 1906: 53. Kensley, 1973: 44, fig. 115

Cynisca bicarinata—Thiele, 1925: 21[55].

Liotia (Cynisca) bicarinata—Barnard, 1963a: 228.

Distribution. Known only from the type locality.

Cinysca dunkeri (Philippi, 1853)

Delphinula granulosa (non Grateloup, 1828) Dunker in Krauss, 1848: 94, pl. 5, fig. 28. Type loc.: 'In tinu [sic] tabulari' [Table Bay]; no type material extant, but contemporary Dunker material of this species in ZMB (Herbert & Warén 1999).
Delphinula dunkeri Philippi, 1853 in 1852–1853: 23, no. 31, pl. 5, fig. 20 [replacement name for *Delphinula granulosa* (non Grateloup, 1828) Dunker, 1848]. Plate published in 1852, without legend; description and plate legend published in 1853.
Liotia granulosa—Martens, 1874: 128, no. 94. Martens, 1904: 46. Thiele, 1925: 20[54].
Gibbula granulosa—G.B. Sowerby (III), 1892: 43 (in part, includes *C. spuria* (Gould, 1861)).
Cynisca granulosa—Barnard, 1963a: 225 (in part, includes *C. spuria* (Gould, 1861)), fig. 8a, b, e (further references). Day, 1969: 160. Kensley, 1973: 46, fig. 117.
Cinysca granulosa (in part, includes *C. spuria* (Gould, 1861))—Richards, 1981: 36, pl. 9, fig. 72. Kilburn & Rippey, 1982: 48. Steyn & Lussi, 1998: 28.
Cinysca dunkeri—Herbert & Warén, 1999: 223. Branch *et al.*, 2010: 174 (in part, includes *C. spuria* (Gould, 1861)), fig. 76.11.

Not *Liotia granulosa*—Martens, 1880: 294. Viader, 1937: 56.

Distribution. False Bay to Atlantic Cape coast (Saldanha), extending north to Namibia (Luderitz); intertidal.

Notes. Records from the Mascarene Islands (Martens 1880; Viader 1937) represent misidentified material.

Cinysca forticostata (E.A. Smith, 1904)

Cynisca forticostata E.A. Smith, 1904a: 38, pl. 3, figs 12, 13. E.A. Smith, 1906: 53. Turton, 1932: 194. Barnard, 1963a: 227 (in part, includes *Homalopoma africanum* (Bartsch, 1915)). Kensley, 1973: 44, fig. 116. Type loc.: Port Alfred, E. Cape; seven syntypes in NHM (NHMUK 1903.12.19.1623–29) and two in ANSP (99413).
Cynisca alfredensis Bartsch, 1915: 164, pl. 29, figs 10–12. Turton, 1932: 194. Type loc.: Port Alfred, E. Cape; holotype in USNM (187109).
Cynisca forticostata—Kilburn & Rippey, 1982: 48. Steyn & Lussi, 1998: 28, fig. 92. Marais, 2011: 9.

Distribution. Southern Cape, from East London to Mossel Bay; shallow subtidal.

Notes. As currently interpreted this species may be composite, comprising the typical pink-spotted *forticostata* and a smaller uniformly white species with more finely beaded sculpture and a more constricted umbilicus in the female (McLean in lit. xi/1984). It is this small form that extends west to Mossel Bay, the typical form reaching only to Jeffreys Bay.

Cinysca semiclausa (Thiele, 1925)—new combination

Liotia (*Cynisca*) *semiclausa* Thiele, 1925: 21[55] and footnote, pl. 2[14], figs 1, 2. Type loc.: Port Natal [Durban]; several potential type lots in ZMB.

Distribution. Known only from the type locality.

Notes. No further material resembling this species has been found in the Durban area (a very well collected locality) suggesting that the original locality was erroneous. The species will most probably prove to be a synonym of *C. spuria* (Gould, 1861) from the southern Cape.

Cinysca spuria (Gould, 1861)—new combination

Monilea spuria Gould, 1861: 17. G.B. Sowerby (III), 1897: 18. Type loc.: Simon's Bay [Simonstown, False Bay]; lectotype in USNM (24269), designated by Johnson (1964: 152), figured by Bartsch (1915).

Turbo (*Collonia*) *armillatus* G.B. Sowerby (III), 1886b: 211, pl. 500, fig. 93. Type loc.: Australia [H. Cuming Coll'n], erroneous; three syntypes in NHM (NHMUK 1984192), Salvador pers. comm. (vii/2015). **Syn. nov.**

Gibbula armillata—G.B. Sowerby (III), 1892: 43.

Leptothyra armillata—E.A. Smith, 1906: 53.

Leptothyra spuria—Bartsch, 1915: 146, 22, figs 4–6 (lectotype of *Monilea spuria*).

Leptothyra africana Bartsch, 1915: 147, pl. 22, figs 1–3. Turton, 1932, 176, pl. 42, no. 1247. Type loc.: Port Alfred, E. Cape; holotype in USNM (186866). **Syn. nov.**

Cynisca gloriosa Bartsch, 1915: 163, pl. 31, figs 6–8. Turton, 1932: 194. Type loc.: Port Alfred, E. Cape; holotype in USNM (250515). **Syn. nov.**

?*Leptothyra eucosmia* Turton, 1932: 177, pl. 42, no. 1254. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

?*Cynisca formosa* Turton, 1932: 194, pl. 50, no. 1350. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required.

Cynisca granulosa (non Krauss, 1848)—Turton, 1932: 194.

Cinysca granulosa (non Krauss, 1848)—Richards, 1981: 36 (in part), pl. 9, fig. 72. Kilburn & Rippey, 1982: 48 (in part), pl. 9, fig. 13. Steyn & Lussi, 1998: 28 (in part), fig. 91. Herbert & Warén, 1999: 223. Marais, 2011: 9.

Distribution. Southern Cape, from Port Alfred to False Bay; living LST and shallow subtidal.

Notes. Judging from the width of the umbilicus as shown in the original figures, *Cinysca gloriosa* (Bartsch, 1915) is a strongly sculptured male specimen of *C. spuria*. Whether Turton's *C. formosa* is also referable here is unclear. The illustration provided indicates the sculpture to be more finely beaded than that of *C. spuria*. *Leptothyra eucosmia* Turton, 1932 is simply a juvenile *Cinysca*, in all probability *C. spuria*. After describing *Turbo (Collonia) armillatus* from Australia, G.B. Sowerby (III) later recorded it from Port Elizabeth (G.B. Sowerby (III) 1892). This name does not seem to have been used subsequently for any Australian species and it is thus probable that the original material was mislocalised.

SUPERFAMILY: PHASIANELLOIDEA Swainson, 1840

FAMILY: COLLONIIDAE Cossmann, 1917

Bothropoma Thiele, 1924. Type species (m.): *Bothropoma isseli* Thiele, 1924 [=*Collonia munda* H. Adams, 1873, *fide* Hickman & McLean 1990].

***Bothropoma ponsonbyi* (G.B. Sowerby (III), 1897)—new combination**

Turbo (Collonia) pillula [sic] (non *Liotia pilula* Dunker, 1860)—G.B. Sowerby (III), 1894: 372.

Turbo ponsonbyi G.B. Sowerby (III), 1897: 17, pl. 6, fig. 20. Turton, 1932: 176, pl. 41, no. 1245. Steyn & Lussi, 1998: 26, fig. 88. Type loc.: Durban; one syntype in NHM (NHMUK 1899.4.14.3671), Salvador pers. comm. (iii/2015).

Turbo (Leptothyra) pillula [sic] (non *Liotia pilula* Dunker, 1860)—G.B. Sowerby (III), 1897: 17.

Turbo natalensis—Barnard, 1963: 213 (in part, incorrect synonymy).

Neocollonia ponsonbyi—Kilburn, 1974: 193, figs 5a, 6 (radula).

Distribution. Durban to central Transkei (Hluleka), exceptionally to East London; beach-drift to 85 m (no data for living specimens).

Notes. When describing this species, G.B. Sowerby (III) obviously considered it to be distinct from *Bothropoma pilula* (Dunker, 1860) and it has generally been considered so ever since. However, this question needs to be investigated in more detail. Inexplicably, Barnard (1963) treated this species as a synonym of *Turbo cidaris natalensis*.

***Bothropoma rhysopoma* (Barnard, 1964)—new combination**

Calcar rhysopoma Barnard, 1964: 17, fig. 2a, b. Kensley, 1973: 48, fig. 130. Type loc.: off Umkomaas (Natal), 40 fathoms [73 m]; syntypes in SAMC (A9285) and NMSA (4088/T1074).

Neocollonia rhysopoma—Kilburn, 1974: 195, fig. 5b (NMSA syntype).

Distribution. Northern Zululand (off Kosi Bay) to Pondoland (Mzamba); beach-drift to 110 m (living 8–85 m).

Cantrainea Jeffreys, 1883. Type species (m.): *Turbo peloritanus* Cantraine, 1835.

***Cantrainea boswelliae* (Barnard, 1969)—new combination**

Turbo boswelliae Barnard, 1969: 652, fig. 27a. Kensley, 1973: 48, fig. 132. Type loc.: off Cape Point, about 200 fathoms [366 m]; holotype in SAMC (A30031).

Distribution. Known only from the type locality.

***Cantrainea gibbula* (Thiele, 1925)—new combination**

Monodonta gibbula Thiele, 1925: 19[53], pl. 1[13], figs 29, 30. Type loc.: *Valdivia* St'n 104 (35°16'S: 22°26.7'E), Agulhas Bank, off Mossel Bay, 155 m; two syntypes in ZMB (in poor condition).

Distribution. Pondoland (off Mtentu River) to Agulhas Bank (off Mossel Bay); 150–500 m (living 500 m).

***Homalopoma* Carpenter, 1864.** Type species (m.): *Turbo sanguineus* Linnaeus, 1758.

***Homalopoma africanum* (Bartsch, 1915)—new combination**

(Figure 9A–C)

Cynisca africana Bartsch, 1915: 165, pl. 28, figs 4–6. Turton, 1932: 195. Type loc.: Port Alfred, E. Cape; holotype in USNM (187098).

Distribution. Central KwaZulu-Natal (Durban) to E. Cape (Port Alfred); beach-drift to 30 m (no data for living specimens).

***Homalopoma agulhasensis* (Thiele, 1925)—new combination**

Leptothyra agulhasensis Thiele, 1925: 22[56], pl. 2[14], fig. 4. Type loc.: *Valdivia* St'n 95 (34°51'S: 19°37.8'E), 7.5 km south of Quoin Point, 80 m; holotype in ZMB.

Distribution. Known only from the type locality.

***Homalopoma quantillum quantillum* (Gould, 1861)**

Collonia quantilla Gould, 1861: 22. Johnson, 1964: 138. Type loc.: Simon's Bay [Simonstown, False Bay]; holotype in USNM (135), figured by Bartsch (1915).

Leptothyra quantilla—Bartsch, 1915: 148, pl. 23, figs 4–6. Thiele, 1925: 21[55], pl. 2[14], fig. 3. Barnard, 1963a: 228. Kensley, 1973: 46, fig. 122.

Homalopoma quantillum—Kilburn & Rippey, 1982: 48, pl. 9, fig. 9. Marais, 2011: 64.

Distribution. Southern Cape, from the Port Alfred–Jeffreys Bay area to False Bay; intertidal and shallow subtidal reefs.

***Homalopoma quantillum carmineum* (Bartsch, 1915)**

Turbo (Collonia) sanguineus (non Linnaeus 1758)—G.B. Sowerby (III), 1889b: 152.

Leptothyra carminea Bartsch, 1915: 148, pl. 23, figs 7–9. Barnard, 1963a: 228. Kensley, 1973: 46, fig. 120. Type loc.: Port Alfred, E. Cape, holotype in USNM (186865).

Homalopoma quantillum carmineum—Kilburn & Rippey, 1982: 48.

Distribution. E. Cape, from East London to the Port Alfred–Jeffreys Bay area; intertidal and shallow subtidal reefs.

Notes. Material historically identified as *Homalopoma quantillum carmineum* probably represents a complex of two or more species. One of these, which occurs intertidally and on near-shore reefs, may genuinely be an eastern subspecies of *H. quantillum*, but samples dredged alive at 25–100 m (dead shells to 450 m) off East London and the Transkei appear to belong to one or more distinct and undescribed species. This material requires further study to determine whether it comprises one variable species, perhaps exhibiting sexual dimorphism, or two distinct taxa. Generally it has fewer, narrower and more angular spiral cords than *H. q. carmineum* and the colour pattern is either uniformly red or red cords with pale intervals, as opposed to *H. q. carmineum* in which the cords are generally paler than their intervals.

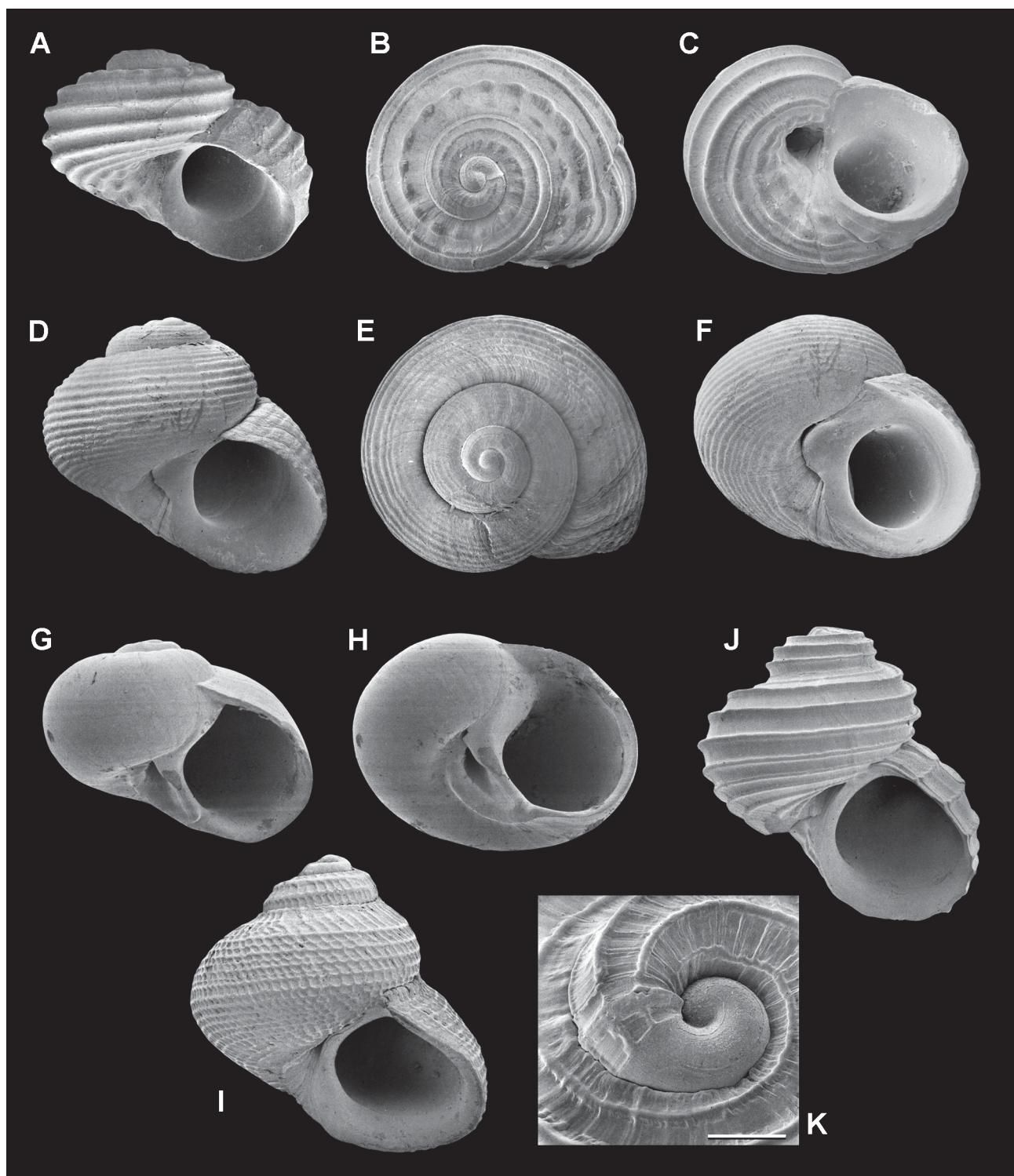


FIGURE 9. A–C, *Homalopoma africanum* (Bartsch, 1915), Aliwal Shoal, KwaZulu-Natal, ±20 m, diameter 1.8 mm (NMSA S7905). D–F, *Homalopoma rotundatum* (G.B. Sowerby (III), 1892), Still Bay, W. Cape, diameter 2.3 mm (NMSA A3071). G, H, *Conjectura agulhasensis* (Thiele, 1925), SSE of Knysna, W. Cape, 101 m, diameter 2.2 mm (NMSA V1792). I, *Crosseola foveolata* (Barnard, 1963), SSE of Knysna, W. Cape, 101 m, diameter 2.3 mm (NMSA V1793). J, K, *Acremodontina* aff. *carinata* (Powell, 1940), off Mbashe River, E. Cape, 200–220 m, length 2.13 mm, scale bar for protoconch = 100 µm (NMSA V908). [Images not to scale.]

***Homalopoma rotundatum* (G.B. Sowerby (III), 1892)**

(Figure 9D–F)

Turbo (Collonia) minutus (non Michaud, 1828) G.B. Sowerby (III), 1889b: 152, pl. 3, fig. 9. G.B. Sowerby (III), 1892: 42, pl. 2, fig. 54. Type loc.: South Africa, but not originally further specified, later given as Port Elizabeth (G.B. Sowerby (III) 1892); two syntypes in NHM (NHMUK 1899.4.14.3605–3606), Salvador pers. comm. (iii/2015).

Cyclostrema rotundata G.B. Sowerby (III), 1892: 45, pl. 2, fig. 47. Turton, 1932: 199, pl. 51, no. 1381. Tomlin, 1923: 50 [= *minutus* G.B. Sowerby (III), 1889]. Type loc.: Port Elizabeth; two syntypes in NHM (NHMUK 1899.4.14.3605–06).

Cyclostrema inconspicua Turton, 1932: 199, pl. 51, no. 1382.

Leptothyra rotundata—Barnard, 1963a: 230, figs 9 a–d. Kensley, 1973: 46, fig. 123.

Homalopoma rotundatum—Kilburn & Rippey, 1982: 48.

Homalopoma rotundatum [sic]—Marais, 2011: 64.

Distribution. KwaZulu-Natal south coast (Port Edward area) to west coast of Cape Peninsula; intertidal.

FAMILY: PHASIANELLIDAE Swainson, 1840

SUBFAMILY: PHASIANELLINAE Swainson, 1840

Phasianella Lamarck, 1804. Type species (s.d. de Roissy 1805): “faisan” [= *Phasianella variegata* de Roissy, 1805 = *Buccinum australe* Gmelin, 1791], ICZN 1962, Opinion 630.

***Phasianella solida* (Born, 1778)**

Helix solida Born, 1778: 408. Born, 1780: pl. 13, figs 18, 19. Type loc.: no locality given; syntypes in NHMW (14338), figured by Nangammbi (2010: 83, fig. 2.12).

Phasianella variegata (non de Roissy, 1805) Lamarck, 1822b: 53. Pilsbry, 1888: 179, pl. 39, figs 97, 98. Viader, 1937: 54. Cernohorsky, 1978: 40, pl. 10, fig. 8. Drivas & Jay, 1988: 36, pl. 3, fig. 9. Wilson, 1993: 102, pl. 11, fig. 4a–e. Type loc.: ‘les mers de la Nouvelle-Hollande’ [the seas of Australia]; type material perhaps in MHNG [not discussed by Mermod].

Phasianella rubens Lamarck, 1822b: 53. Type loc.: ‘les mers de la Nouvelle-Hollande’ [the seas of Australia]; type material perhaps in MHNG [not discussed by Mermod].

Tricolia brongnartii [sic] Audouin, 1826: 41. Bouchet & Danrigal, 1982: 12, fig. 26. Type loc.: Suez; holotype in MNHN, figured by Bouchet & Danrigal (1982: fig. 26).

Tricolia guerini Audouin, 1826: 41. Bouchet & Danrigal, 1982: 13. Type loc.: Suez; type material lost.

Turbo (Phasianella) lineolatus Wood, 1828: 19, 48, pl. 6, fig. 26. Type loc.: Isle of France [Mauritius]; four syntypes in NHM (NHMUK 1963302, one specimen; 1963303, three specimens; the single specimen was annotated to be the lectotype by Robertson in 1962, but the designation was never published), Salvador pers. comm. (iii/2015).

Phasianella aethiopica Philippi, 1853: 7, pl. 3, figs 3, 4. Reeve, 1862: 13, pl. 12a–c. Martens, 1880: 292. Pilsbry, 1888: 166: pl. 38, figs 53, 54, pl. 39, fig. 94. Viader, 1937: 54. Jarrett, 2000: 9, fig. 28. Jay, 2014. Type loc.: ‘Ostküste Afrikas, Zanzibar etc.’ [east coast of Africa, Zanzibar etc.]; type material perhaps in ZMB or MNHNC.

Phasianella grata Philippi, 1853: 9, pl. 3, fig. 8. Viader, 1937: 54. Type loc.: ‘Madagaskar’; type material perhaps in ZMB or MNHNC.

Phasianella jaspidea Reeve, 1862: pl. 4, sp. 11. Martens, 1879: 735. Barnard, 1963a: 206, fig. 3a. Kensley, 1973: 52, fig. 141. Type loc.: Zanzibar; three syntypes in NHM (NHMUK 163319).

Phasianella (Orthomesus) variegata—Pilsbry, 1888: 179, pl. 39, figs 97, 98.

Phasianella zigzag Odhner, 1919: 31, pl. 2, fig. 25. Robertson, 1985: 25. Type loc.: Fénérive [Fenoarivo, east coast of Madagascar]; two syntypes in alcohol in SMNH (1071).

Phasianella (Tricolia) zigzag—Dautzenberg, 1929: 528.

Phasianella brougniarti [sic]—Viader, 1937: 54.

Phasianella solida—Viader, 1937: 54. Drivas & Jay, 1988: 36, pl. 3, fig. 8. Moolenbeek & Dekker, 1993: 147, fig. 19. Wilson, 1993: 102, pl. 11, fig. 3a, b. Bosch *et al.*, 1995: 42, fig. 979. Rusmore-Villaume, 2008: 28. Zuschin *et al.*, 2009: 109, pl. 17, figs 1–5. Nangammbi, 2010: 79, figs 2.12–2.15. Robertson, 2010. Jay, 2014.

Tricolia brongniartii—Robertson, 1985: 20.

Phasianella solida solida—Deuss *et al.*, 2013: 140, fig. c.

Distribution. Widespread in the Indo-West Pacific; extending south to central Zululand (Leven Point); living low intertidal and near-shore reefs to 50 m.

Notes. The synonymy of this species is probably far more extensive than indicated above. Robertson (2010) considered *Phasianella solida* to be the earliest name for a geographically variable complex of nominal taxa

occurring over much of the Indo-West Pacific and provided a listing of potential synonyms. The names listed above focus on those described or recorded from the western Indian Ocean.

SUBFAMILY: TRICOLIINAE Woodring, 1928

Hiloa Pilsbry, 1917. Type species (m.): *Phasianella thaanumi* Pilsbry, 1917 [=male *Collonia variabilis* Pease, 1861]

Hiloa variabilis (Pease, 1861)

Collonia variabilis Pease, 1861: 436, pl. 61, figs 10, 11. Kay, 1965: 61, pl. 7, figs 1, 2. Type loc.: Sandwich Islands [Hawaii]; lectotype in NHM (NHMUK 1963331), designated by Robertson (in Kay 1965: 61, pl. 7, figs 1, 2).

Phasianella variabilis—Viader, 1937: 54.

Hiloa variabilis—Cernohorsky, 1978: 42, text fig. 8. Nangammbi, 2010: 72, figs 2.9–2.11.

Tricolia (Hiloa) variabilis—Kay, 1979: 59, figs 7B, 16F, G, 17.

Tricolia variabilis—Robertson, 1985: 72, pls. 55–96 (detailed synonymy). Herbert, 1991c: 310, fig. 8. Moolenbeek & Dekker, 1993: 145, figs 13, 14. Wilson, 1993: 103. Bosch *et al.*, 1995: 43, fig. 100. Jay, 2014.

Distribution. Widespread in the Indo-West Pacific; extending south to central Zululand (Leadsman Shoal); local material 5–100 m, but mostly <20 m (no data for living specimens).

Tricolia Risso, 1826. Type species (s.d. Gray 1847): *Turbo pullus* Linnaeus, 1758.

Tricolia adusta Nangammbi & Herbert, 2006

Tricolia adusta Nangammbi & Herbert, 2006: 12, figs 1–16. Nangammbi, 2010: 90, figs 2.16–2.19. Nangammbi *et al.* in press. Type loc.: Cracker Reef, Aliwal Shoal, KwaZulu-Natal; holotype in NMSA (E7143/T2013).

Distribution. Northern Zululand (off Kosi Bay) to southern Transkei (off Qora River); beach-drift to 140 m (living shallow subtidal to 70 m).

Tricolia bicarinata (Dunker, 1846)

Phasianella bicarinata Dunker, 1846: 110. Krauss, 1848: 105. E.A. Smith, 1911: 313. Bartsch, 1915: 145. Turton, 1932: 174, no. 1236. Type loc.: ‘*Prom. bon. spei.*’ [Cape of Good Hope]; holotype in ZMB (108.796).

Phasianella kraussi E.A. Smith, 1911: 313, text figs. Type loc.: Kalk Bay, False Bay, Cape of Good Hope; two syntypes in NHM (NHMUK 1911.4.26.1–2).

Phasianella tropidophora Tomlin, 1931: 420, pl. 33, fig. 1 [=form *bicarinata*]. Type loc.: East London and Cape Peninsula, restricted to Cape Peninsula by Nangammbi (2010); two syntypes in NMW (1955.158.00969–70).

Phasianella insignis Turton, 1932: 175, pl. 41, no. 1239. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002785).

Tricolia tropidophora—Barnard, 1963a: 209; Kensley, 1973: 52, fig. 146.

Tricolia bicarinata—Kilburn & Rippey, 1982: 47. Nangammbi, 2010: 113, figs 2.28–2.31. Nangammbi *et al.* in press.

Tricolia insignis—Kilburn & Rippey, 1982: 47. Nangammbi, 2010: 120, figs 2.32–2.35. Nangammbi *et al.* in press (=*bicarinata*).

Tricolia kraussi—Nangammbi, 2010: 126, figs 2.36–2.39. Nangammbi *et al.* in press (=*bicarinata*).

Not *Tricolia bicarinata*: Barnard, 1963a: 210. Kensley, 1973: 52, fig. 142 [=*Fossarus* sp.].

Not *Phasianella kraussi*: Turton, 1932: 175, pl. 41, no. 1239 [=*Tricolia kochii* (Philippi, 1848)].

Distribution. Form *bicarinata* occurs on the Atlantic Cape coast, from Kommetjie to Namibia (Luderitz); intertidal. Form *kraussi* occurs only in False Bay; intertidal and near-shore reefs to 12 m. Form *insignis* ranges from Pondoland (Mzamba) to W. Cape (Hawston); intertidal and near-shore reefs to 30 m.

Notes. Over its quite considerable range, this species exists as three distinct ecomorphs, the typical one on the cold Atlantic coast, form *insignis* on the warmer south and east coasts and form *kraussi* in the more sheltered habitats in False Bay. Genetically they cluster as an unresolved clade exhibiting little genetic differentiation (Nangammbi *et al.* in press).

***Tricolia capensis* (Dunker, 1846)**

Phasianella capensis Dunker, 1846: 110. Krauss, 1848: 104, pl. 6, fig. 5. Bartsch, 1915: 145. Type loc.: ‘*Prom. bon. spei*’ [Cape of Good Hope]; 30 syntypes in ZMB (108.794).

Phasianella africana Bartsch, 1915: 145, pl. 10, fig. 2. Turton, 1932: 174, no. 1235. Type loc.: Port Alfred, E. Cape; holotype in USNM (186870).

Phasianella rufanensis Turton, 1932: 174, pl. 41, no. 1232. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002778).

Phasianella rufanensis adjacens Turton, 1932: 174, pl. 41, no. 1233. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002779).

Phasianella farquhari Turton, 1932: 174, pl. 41, no. 1234. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002780).

Tricolia capensis—Grindley & Kensley, 1966: 11. Day, 1969: 158 (in part). Kensley, 1973: 52, fig. 143. Kensley, 1977: 190, fig. 1 (Pliocene). Kensley & Penrith, 1980: 211. Kilburn & Rippey, 1982: 42 (in part, includes *T. kochii* (Philippi, 1848)), pl. 9, fig. 7b [not 7a = *Tricolia kochii*]. Robertson, 1985: 21. Branch *et al.*, 2010: 180, fig. 79.8, 79.8a. Nangammbi, 2010: 105, figs 2.24–2.27. Marais, 2011: 51. Nangammbi *et al.* in press.

Tricolia africana—Nangammbi, 2010: 98, figs 2.20–2.23. Nangammbi *et al.* in press (= *capensis*).

Not *Tricolia capensis*—Steyn & Lussi, 1998: 28, fig. 93 [= *Tricolia kochii* (Philippi, 1848)].

Not *Phasianella capensis*—Deshayes, 1863: 76. Viader, 1937: 54 [= *Phasianella solida* Born, 1878].

Distribution. Southern and Atlantic Cape coast, from southern Transkei (Qora River) to the Namibia-Angola border (Kensley & Penrith 1980); intertidal.

Notes. Molecular studies have shown that, although morphologically distinct, *T. africana* and *T. capensis* cannot be distinguished from a genetic perspective (Nangammbi *et al.* in press). In all probability they are warm-temperate (*africana*) and cold-temperate (*capensis*) ecomorphs of a single species. Shells of somewhat intermediate appearance occur on either side of Cape Agulhas. Records from the Mascarene Islands and Japan were based on misidentified and mislocalised material respectively (Robertson 1985).

***Tricolia elongata* (Krauss, 1848)**

Phasianella elongata Krauss, 1848: 104, pl. 6, fig. 3. E.A. Smith, 1911: 313. Bartsch, 1915: 145. Thiele, 1925: 23[57]. Turton, 1932: 172, no. 1223. Type loc.: ‘*In litore capensi*’ [on the shore of the Cape]; type material probably lost, none in SMNH (Herbert & Warén 1998).

Phasianella tenuis (non Philippi, 1844, nec Michaud, 1829)—Krauss, 1848: 105.

Phasianella alfredensis Turton, 1932: 173, pl. 40, no. 1227. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002773).

Tricolia elongata—Robertson, 1985: 21. Nangammbi, 2010: 131, figs 2.40–2.44. Marais, 2011: 52. Nangammbi *et al.* in press.

Not *Phasianella* (*Tricolia*) *elongata*—Dautzenberg, 1929: 528 [= *Phasianella solida* Born, 1878].

Distribution. Southern Cape coast, from East London to False Bay; intertidal.

Notes. Records from Madagascar and Japan were based on misidentified and mislocalised material respectively (Robertson 1985). The material that Krauss (1848) recorded under the name *Phasianella tenuis* (= *Tricolia tenuis* from the Mediterranean) was clearly misidentified. The dimensions he gave indicate that the shell he had before him was slender and that it was most probably a colour variant of *T. elongata*.

***Tricolia formosa* (Turton, 1932)**

Phasianella capensis (non Dunker, 1846)—Turton, 1932: 173, pl. 40, no. 1229.

Phasianella formosa Turton, 1932: 173, pl. 41, no. 1230. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002776).

Phasianella pallida Turton, 1932: 173, pl. 41, no. 1231. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002777).

Tricolia formosa—Nangammbi, 2010: 139, figs 2.45–2.48. Nangammbi *et al.* in press.

Distribution. Southern Cape coast, from Transkei (Whale Rock) to False Bay; living infratidal to 32 m.

***Tricolia ios* Robertson, 1985**

Tricolia ios Robertson, 1985: 50, pls. 29–35. Herbert, 1991c: 308, fig. 7. Moolenbeek & Dekker, 1993: 147, figs 15–18. Bosch *et al.*, 1995: 42, fig. 99. Nangammbi, 2010: 146, figs 2.49–2.51. Type loc.: 19 km NE of Mogadishu, Somali Republic; holotype in ANSP (295535).

Distribution. Western Indian Ocean, from Somalia to the KwaZulu-Natal south coast (Aliwal Shoal); local material beach-drift to 100 m (living 5–10 m).

***Tricolia kochii* (Philippi, 1848)**

Phasianella kochii Philippi in Krauss, 1848 (January): 104, pl. 6, fig. 4. Philippi, 1848 (February): 17. Bartsch, 1915: 144. Turton, 1932: 172, pl. 40, no. 1218. Moura, 1969: 17. Herbert & Warén, 1999: 224. Type loc.: ‘*in litore capensi*’ [on the shore of the Cape]; one syntype in NHM (NHMUK 1923.7.13.19), Salvador pers. comm. (iii/2015). *Phasianella kochi* [sic]—Martens, 1874: 130, no. 104. ?*Leptoptyra subconica* Turton, 1932: 178, pl. 42, no. 1257. Type loc.: Port Alfred, E. Cape; type material probably in OXUM, but verification required. *Phasianella kochii viridis* (non Anton, 1838) Turton, 1932: 172, no. 1219. Type loc.: Port Alfred, E. Cape; five syntypes in OXUM (M002765). *Phasianella kochii maculata* Turton, 1932: 172, pl. 40, no. 1220. Type loc.: Port Alfred, E. Cape; five syntypes in OXUM (M002766). *Phasianella kochii nigra* Turton, 1932: 172, no. 1221. Type loc.: Port Alfred, E. Cape; five syntypes in OXUM (M002767). *Phasianella carinata* Turton, 1932: 172, pl. 40, no. 1226. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002772). *Phasianella fuscomaculata* Turton, 1932: 173, pl. 40, no. 1228. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002774). *Phasianella kochii* var. *rietensis* Turton, 1933: 371 [replacement name for *Phasianella kochii viridis* (non Anton, 1838) Turton, 1932]. *Tricolia kochii*—Kensley, 1973: 52, fig. 144. Richards, 1981: 38, pl. 11, fig. 84. Robertson, 1985: 23. Branch *et al.*, 2010: 180, fig. 79.9. Nangammbi, 2010: 151, figs 2.52–2.55 (detailed chresonymy). Marais, 2011: 52. Nangammbi *et al.* in press. *Tricolia capensis* (non Dunker, 1846)—Kilburn & Rippey, 1982: 42, pl. 9, figs 7a. Steyn & Lussi, 1998: 28, fig. 93.

Not *Phasianella kochi*: Viader 1937: 54 [=*Phasianella solida* Born, 1878].

Distribution. Southern Mozambique (Inhambane) to Cape Agulhas; intertidal and shallow subtidal.

Notes. Records from the Mascarene Islands and Australia were based on misidentified material (Robertson 1985).

***Tricolia neritina* (Dunker, 1846)**

Phasianella neritina Dunker, 1846: 110. Krauss, 1848: 105, pl. 6, fig. 6. Bartsch, 1915: 146. Type loc.: ‘*Prom. bon. spei*’ [Cape of Good Hope]; eight syntypes in ZMB (108.795). *Gena lineata* A. Adams, 1850: 39. Type loc.: not given; syntype in NHM (NHMUK 1963308), annotated by Robertson as lectotype, but not published. *Chromotis neritina*—H. Adams & A. Adams, 1863: 20. *Phasianella* (*Chromotis*) *neritina*—Martens, 1880: 293. *Tricolia* (*Chromotis*) *neritina*—Barnard, 1963a: 210, fig. 3b. *Tricolia neritina*—Grindley & Kensley, 1966: 11. Day, 1969: 158. Kensley, 1973: 52, fig. 145. Kilburn & Rippey, 1982: 47, pl. 9, fig. 8. Robertson, 1985: 24. Branch *et al.*, 2010: 180, fig. 79.10. Nangammbi, 2010: 162, figs 2.56–2.60 (detailed chresonymy). Nangammbi *et al.* in press. *Phasianella neritina*—Jarrett, 2000: 9, fig. 29.

Distribution. Eastern Cape (Port Alfred) to Namibia (Luderitz); intertidal.

Notes. Records from Mauritius (Martens 1880) and the Seychelles (Jarrett 2000) are erroneous (probably based on mislocalised specimens). *Tricolia munieri* Vélain, 1876, from Île St-Paul, is very similar and may prove to be a synonym. The taxon *Chromotis* H. Adams & A. Adams, 1863, of which *Phasianella neritina* Dunker, 1846 is the type species, is not genetically distinct from *Tricolia* (Nangammbi *et al.* in press).

***Tricolia retrolineata* Nangammbi & Herbert, 2008**

Tricolia retrolineata Nangammbi & Herbert, 2008: 14, figs 1–12, 15–17. Nangammbi, 2010: 171, figs 2.61–2.64. Type loc.: Mozambique, Ponta do Ouro (26.850°S: 32.917°E), subtidal reef, ca 20 m; holotype in NMSA (L5938/T2238).

Distribution. Southern Mozambique (Malongane) to northern Pondoland (Mzamba); beach-drift to 26 m, mostly associated with subtidal reefs (living 7–11 m).

***Tricolia saxatilis* Nangammbi & Herbert, 2006**

Tricolia saxatilis Nangammbi & Herbert, 2006: 17, figs 17–28. Nangammbi, 2010: 178, figs 2.65–2.67. Nangammbi *et al.* in press. Type loc.: off Whale Rock, E. Cape (31°56.9'S: 29°13.5'E), 20–26 m; holotype in NMSA (V4048/T2129).

Distribution. Northern Zululand (Hully Point) to E. Cape (Port Alfred); 8–50 m (living 8–36 m).

***Tricolia striolata* (Turton, 1932)**

Phasianella striolata Turton, 1932: 174, pl. 41, no. 1237. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002783).

Phasianella piperata Turton, 1932: 175, pl. 41, no. 1238. Type loc.: Port Alfred, E. Cape; holotype in OXUM (M002784).

Leptothyra albocincta Turton, 1932: 178, pl. 42, no. 1256. Type loc.: Port Alfred, E. Cape; holotype probably in OXUM, but verification required. *Syn. nov.*

Tricolia striolata—Nangammbi, 2010: 184, figs 2.68–2.70.

Distribution. Eastern Cape, from East London to Port Alfred; beach-drift (no living specimens known).

VETIGASTROPODA unassigned families

FAMILY: CROSSEOLIDAE Hickman, 2013

[#]*Conjectura* Finlay, 1926. Type species (o.d.): *Crossea glabella* Murdoch, 1908.

***Conjectura agulhasensis* (Thiele, 1925)—new combination**

(Figure 9G–H)

Crossea agulhasensis Thiele, 1925: 66[100], pl. 8[20], fig. 3. Type loc.: *Valdivia* St'n 95 (34°51'S: 19°37.8'E), 7.5 km south of Quoin Point, 80 m; two syntypes in ZMB.

Distribution. Agulhas Bank, from SSE of Knysna to just west of Cape Agulhas 80–110 m (no data for living specimens).

Notes. The type species of *Conjectura* has been well illustrated by Hickman (2013) and I have no hesitation in referring this South African species to the genus. A second and undescribed species of *Conjectura* with a higher spire and two prominent peri-umbilical keels has been dredged off the Mgazi River, E. Cape.

[#]*Crosseola* Iredale, 1924. Type species (o.d.): *Crossea concinna* Angas, 1868)

***Crosseola foveolata* (Barnard, 1963)—new combination**

(Figure 6M, N, 9I)

Turbo foveolatus Barnard, 1963a: 216, fig. 6. Type loc.: 34°5'S: 25°42'E, 52 fathoms [=off Cape Recife, 95 m]; syntypes in SAMC (A9284).

Turbo foveolata—Kensley, 1973: 50, fig. 136.

Distribution. Agulhas Bank, from off Algoa Bay area to off Cape Infanta; 91–285 m (no data for living specimens).

Notes. It is with some reservation that I refer this species to *Crosseola*, although I have more confidence that it is a member of the Crosseolidae. The small (height <3.0 mm), robust, whitish shell, absence of nacre, uninterrupted circular peristome and the form of the umbilicus are consistent with this family but the umbilical keel and anterior canal are relatively weakly developed and there is no variciform thickening of the outer lip. The reticulate-foveolate sculpture of the shell is reminiscent of the early whorls of *Crosseola concinna* (Angas, 1867), but the species may ultimately prove to belong to an undescribed crosseolid genus. The shell is more robust and the spiral sculpture much weaker than in species of *Parviturbo*.

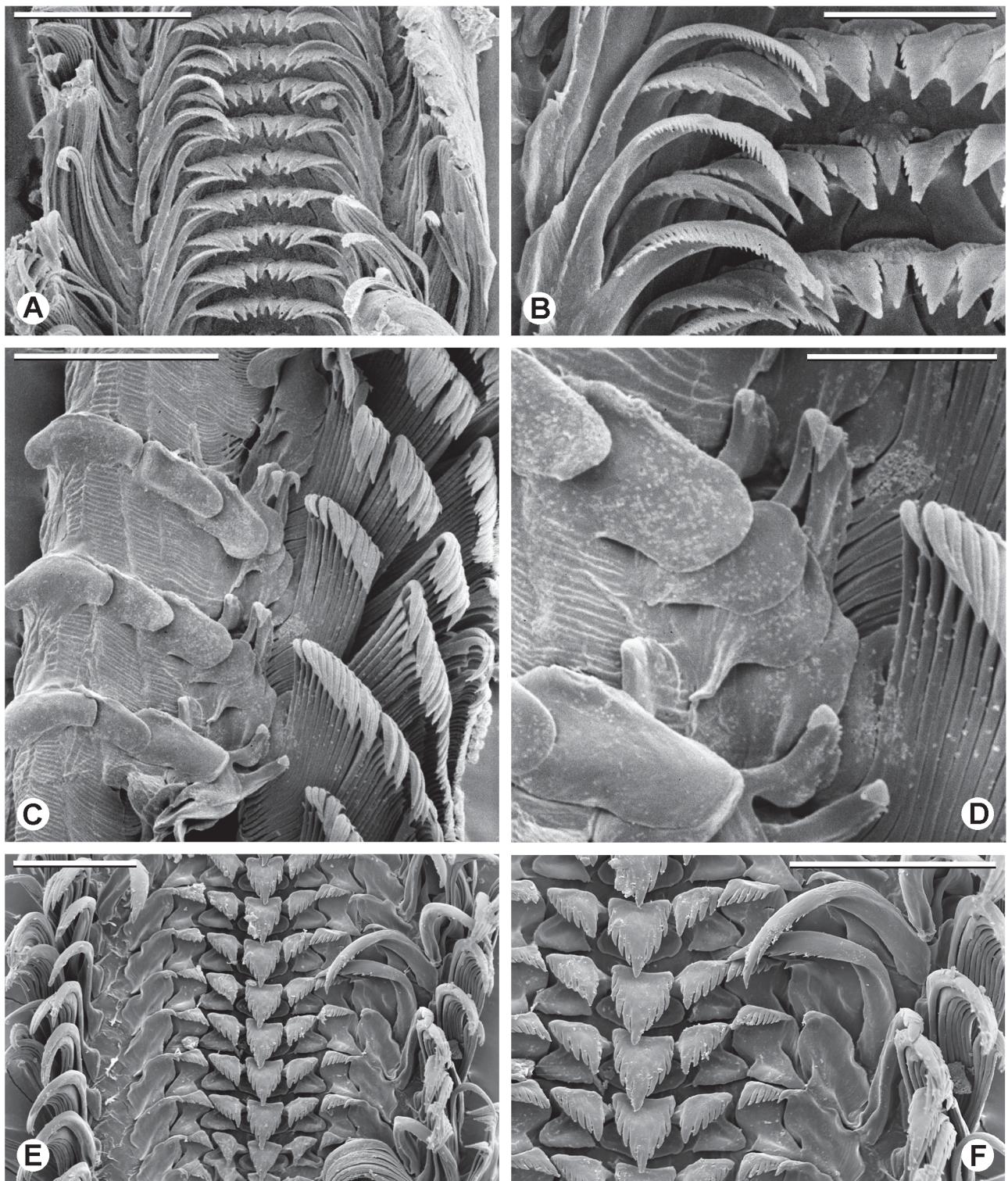


FIGURE 10. Radulae. **A, B,** *Tibatrochus* cf. *incertus* (Schepman, 1908), scale bars 100 µm and 25 µm respectively (NMSA E331). **C, D,** *Skenea fuscomaculata* (G.B. Sowerby (III), 1892), scale bars 50 µm and 20 µm respectively (NMSA V357). **E, F,** *Zetela turbynei* (Barnard, 1963), scale bars 250 µm and 100 µm respectively (NMSA V5510).

FAMILY: TROCHAELIDIDAE Thiele, 1928

[#]*Acremodontina* B.A. Marshall, 1995. Type species (o.d.): *Conjectura carinata* Powell, 1940.

***Acremodontina* aff. *carinata* (Powell, 1940)—new record**

(Figure 9J, K)

Conjectura carinata Powell, 1940: 223, pl. 28, fig. 8. Powell, 1979: 74, pl. 20, fig. 22. B.A. Marshall, 1995b: 102, figs 20–22, 29, 30, 56–59. Type loc.: between Spirits Bay and Three Kings Islands, northern New Zealand, 91 m; holotype in Auckland Institute and Museum (72052).

Distribution. Local material known only from off Mbashe River, E. Cape, 200–220 m, sponge dominated substratum, living.

Notes. This material probably represents an undescribed species, but one that is similar to *A. carinata* and other strongly carinate *Acremodontina* species (Marshall 1995b). The highly glossy shell and flattened apex with somewhat sunken protoconch are typical of the genus. There is also a strong varix on the first quarter teleoconch whorl (Fig. 9K) and the radula exhibits the very unusual features typical of *Acremodontina* including short, scale-like central and lateral teeth, and slender, terminally branched marginal teeth (Herbert unpubl. obs.). This is the first record of the genus outside the Australasian region.

VETIGASTROPODA incertae sedis

***Pagodatrochus* Herbert, 1989.** Type species (o.d.): *Minolia variabilis* H. Adams, 1873.

***Pagodatrochus variabilis* (H. Adams, 1873)**

Minolia variabilis H. Adams, 1873: 207, pl. 23, fig. 10. Type loc.: Persian Gulf; holotype in NHM (NHMUK 1878.1.28.96), figured by Herbert (1989b: fig. 1e).

Pagodatrochus variabilis—Herbert, 1989b: 366, figs 1a–f, 2, 3, 4a–c, 5 (detailed synonymy). Bosch *et al.*, 1995: 37, fig. 52. Zuschin *et al.*, 2009: 99, pl. 9, figs 1–4. Bandel, 2010: 461, fig. 10. Jay, 2014.

Distribution. Western Indian Ocean, from the Persian Gulf and Red Sea through East Africa, the Comoros and Mascarene Islands to the KwaZulu-Natal south coast (off Park Rynie); local material 18–250 m, but mostly less than 100 m (living 18–100 m).

Notes. The phylogenetic relationships of this genus are unclear. Herbert (1989b) tentatively referred it to the Gibbulinae [=Cantharidinae], but more recently Bandel (2010) suggested that the genus was related to seguenzioid (eucycloid) taxa and created for it a new family, the Pagodatrochidae. Herbert (2012) noted that while some characters of the shell and radula of *Pagodatrochus* are indeed similar to those of chilodontid seguenzioids, features of the external anatomy are less consistent with such a relationship. In the absence of molecular data I consider it preferable to treat the genus as a vetigastropod taxon of uncertain affinity.

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